THE CANADIAN Horticulturist.

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RHODODENDRON—PINK.

For Canadian Horticulturist.

THE
CANADIAN HORTICULTURIST.

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THE RHODODENDRON.

"Rhodora! if the sages ask thee why
This charm is wasted on the earth and sky,
Tell them, dear, if eyes were made for seeing,
Then beauty is its own excuse for being."

THE Rhododendron is one of the most popular shrubs cultivated in the English gardens. The moist climate of that country, and its moderate temperature afford conditions favorable to the cultivation of many of the finest and most showy varieties, most of which are entirely too tender to be grown in even the southern portions of our province. Hooker, the eminent botanist, describes a plantation at Embly, near Romsey, of which we read about eight years ago. He said: "They were planted thirty years ago, the largest number in an exceedingly wet bottom of deep, black peat, full of drains and sheltered with sloping banks of Birch and Fir, but with much Laurel, large Kalmias and Azaleas near the road.

"The shrubs had been cut continually to keep the road clear, and finally made a bank from seventeen to eighteen feet high. They were scattered over the high ground (a dry, black sand) for two miles. There were, perhaps, a dozen of R. maximum, about three times as many R. arboreum and hybrid scarlets. R. ponticum and R. roseum seeded themselves to great extent, consequently producing a great variety in shape, size and color of the flowers. The largest single specimen plant of Rhododendron was one hundred and fifty feet round, and twenty feet high. The American species flourished with great vigor, one specimen measured nine and one-half feet in height, and forty-one and one-half feet in circumference."

To those of our readers who have never read up about the Rhododendron it will be a surprise to learn that over 100 species have been discovered in various parts of the world. Its favorite habitat is the Himalayan mountains of India, where about forty distinct varieties have been discovered, some of them

at great altitudes. Here it grows to perfection. Does it not seem too bad that this elegant mountain beauty, with its magnificent flowers of rose or purple, should be doomed to waste its sweetness on the desert air. On Mount Tonglo, in Nepal, at 7,000 ft. altitude, Dr. Hooker discovered a very interesting variety; it was an epiphyte living high up on the trunks of oak or Magnolis trees, with a stalk often five or six feet in length. It was from the numerous lily like flowers of the Rhododendron, and the egg like flowers of a peculiar Magnolia tree strewing the ground, that Dr. Hooker was led to the discovery. He says, "So conspicuous were the flowers that my rude guides called out, "Here are lilies and eggs, sir, growing out of the ground," a very fair description.

The Doctor named this variety Dalhousii, in honor of the wife of the then Governor General of India, Lady Dalhousie.

In America there are about six varieties, found mostly in the middle states. One variety, R. maximum, one of the finest, is found from New England to Georgia.

FIG. 1027.—RHODODENDRON DALHOUSII.

The name rhododendron, is from the Greek words rhodos a rose, and dendron a tree, in allusion to its rose red flowers, and it is botanically allied to the Azalea. The shrub is evergreen, most varieties growing to from one to ten feet high, and about the same breadth, and the flowers, which grow in terminal clusters, vary in color from white to pink, yellow, lilac, crimson and deep purple.

All this will be of little interest to our readers unless they can cultivate this beautiful shrub. Well, of course, it is too tender outside of Southern Ontario, unless well protected in winter, or else grown in a tub and set inside during cold weather. It is easily transplanted, and easily grown under right conditions. These are good rich soil, entirely free from lime or chalk, plenty of water, and partial shade.

A USEFUL WINDOW BOX DEVICE.

The accompanying sketch shows two brackets arranged outside of a window in such a way that the window-box within can be pushed out into the open air when the window is raised. The brackets have grooved tops, as shown in the diagram, so the box slides without danger of falling. It is a great advantage to be thus able to slide the window-box out of doors so easily, for the fresh air, a gentle rain or shower, and the clear sunlight, are often just the things needed by the plants to make them grow thriftily. One could carry out a window-box and secure these conditions, but the trouble would be much greater than the simple raising of the sash and pushing the box out—so much greater that without a device of this sort the plants would rarely get an outing.

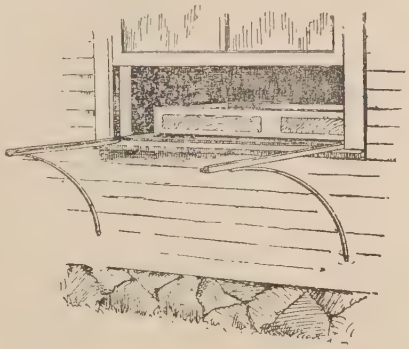

Fig. 1028.—Window Box.

Cold Frame Cabbage Plants.—Mr. T. Greiner writes Farm and Fireside: One of our readers asks when and how to grow cabbage-plants to winter over in cold frames. Seed of early Jersey Wakefield should be sown in open ground about September 15th and 20th. It is always best to make two sowings to make sure of good plants. Then in the middle of October, or soon after, the plants are pricked out into cold-frames in rows three inches apart in the rows. When winter sets in, the sashes must be put on; but plenty of ventilation is to be given on mild sunny days all winter long The plants are to be kept dormant, and must be prevented from starting into active growth before it is time to set them in open ground in early spring. They are then well hardened off, and able to endure the cold spells that are likely to come afterward without injury. In my own practice, I prefer to start cabbage, cauliflower and lettuce plants in the greenhouse during February, and transplant them into cold frames as soon as the weather will permit, then a few weeks later into the open ground.

Papa: "Willie, where are those apples gone that were in the storeroom?" Willie: "They are with the gingerbread that was in the cupboard"—*Newcastle Chronicle.*

Fig. 1029.— Lower part of City from St. Mary's Tower.

OUR FRUIT GROWERS AT KINGSTON.

IN response to an invitation repeated two successive years, we held our Annual Meeting for 1896 in the old "Limestone City." Thanks to the British Whig, we are able to give our readers some interesting views of this old historic town in connection with our brief account of a visit and a summary of some of the more important papers.

FIG. 1030.—CEDAR ISLAND IN HARBOR

If one approaches Kingston by water, one must be impressed with the military aspect presented by the numerous massive martello towers and stone batteries, and also by the stout appearance of the city buildings themselves, built of stone and giving the city its well-deserved title. These towers were in early times a strong defence, manned with heavy guns and ammunition and well garrisoned; but in modern warfare they would be of little value, and are preserved rather for ornament than use. Beyond Fort Frederick, looking eastward from the city one sees the Military College, the Westpoint of Ontario, with its sixty or seventy cadets, with their red coats and white helmets.

The city itself is peculiarly laid out, and though our directors spent about four days in it, scarcely any one could find his way about without a guide. A view of a portion of the city is well shown in our illustration on the preceding page, as seen from St. Mary's Tower,

After calling upon the editors of the leading papers, the Whig and the News, some of us who were first to arrive,

called upon His Worship, Mayor Elliot. We found him in his office in the City Hall, and he received us most cordially, and promised to do anything in his power to make our visit welcome.

FIG. 1031.—FORT FREDERICK IN HARBOR.

The Board of Governors of the Kingston Dairy School very kindly gave the use of their Lecture Hall for our sessions, but the attendance was so much beyond our anticipations that we should rather have accepted the offer of the City Hall, which was more centrally located and afforded greater seating capacity.

FIG. 1032.—CITY HALL

Never in the history of our Association have we had a more profitable meeting, and our report will be of the greatest value. It is not often so much talent can be brought together to discuss fruit topics. There were present both the Dominion and the Provincial Minister of Agriculture, Dr. Saunders and Mr. John Craig, of Ottawa; Prof. H. L. Hutt, of Guelph; R. J. Shepherd, of Montreal; Capt. Shepherd of Queenston; Mr. J. L. Haycock, M.P.; Mr. Ruddick, Superintendent of the Dairy School, and numerous experts in fruit culture from all parts of the Province. Not least, among us was, the array of talent which we were able to borrow from the neighboring Queen's College. Mr. Adam Short, Professor of Political Science, gave an excellent paper on "Gardening in Relation to Civilization," and showed us clearly the steps of advance in the history of gardening. He seemed to favor the natural style of gardening, rather than the artificial, and mercilessly condemned the monstrosities so often seen in our city parks, in the way of stiff designs or of ribbon bedding. The stiff architectural element is in keeping near the house, but should shade off into the natural as you go from it.

FIG. 1033.—PROF. SHORT.

Prof. Fowler's lecture on "Fertilization of Flowers," was an excellent one.

True, it dealt much with first principles, but these are often too little understood, even by the practical hybridist, who is aiming at both fame and fortune by means of some fortunate cross or hybrid. The professor showed clearly the whole processs of fertilization of the ovules by the pollen grains, and exploded the old idea that the flowers of our fruits depended each upon its own pollen, for often the very position of stamens and pistils with respect to each other were unfavorable to this work being successfully accomplished. The pollen was carried from one flower to another by wind and by insects, and was more potent with another flower than with its own.

FIG. 1034.—PROF. FOWLER.

Fig. 1035.—Art Building of Queen's College.

FIG. 1036.—PRINCIPAL GRANT.

Principal Grant himself, was a frequent attendant at our meetings, and seemed to take the deepest interest in all our discussions. He even presided at the session of Thursday evening, and imparted his own enthusiastic spirit to the whole meeting. Some one well remarked, after hearing his admirable address, and his conduct of the meeting, "Truly there is only one Principal Grant."

During the evening Prof. Knight, also of Queen's gave an address on "Organic Evolution," a subject somewhat foreign to our discussions, and evidently not wholly relished by all present, many of whom are still among those styled by the Doctor "The hopeless minority." The lecturer well presented the theory of evolution, and aimed at proving the common origin of plants and animals from "one undifferentiated mass of protoplasm" as Dr. Bastin puts it. That the vermiform appendix proves man's common origin with the cow; the gill slits in the human fœtus his common origin with the fish; his upward turn of the aorta before carrying the blood down the legs his relation to the birds, is in our humble opinion begging the whole question. However, we have no fear that science and religion will ever disagree when fully understood, and IF evolution is a correct theory, it will not contradict Genesis.

FIG. 1037.—PROF. KNIGHT.

FIG. 1038.—REV. DR. BELL.

The Rev. Geo. Bell, of Queen's also contributed an excellent paper on "Fruit as Food and Medicine." The Doctor is one of the oldest and best friends of the Association in the vicinity of Kingston, and to him is due a special debt of gratitude. This paper will appear in full in our report.

The great attraction of Thursday afternoon and evening was the presence

and address of two Canadian farmers, one of whom occupies the position of Minister of Agriculture for the Dominion, and the other that for the Province of Ontario. The latter in his address emphasized most emphatically the great importance of influencing our Canadian fruit growers to grow only the best fruit, and pack only the best in the very best manner, and then there would be no difficulty in marketing it in any part of the world at remunerative prices ; while the former encouraged us to hope for some special service on railway and steamboat, by which our finest and most delicate fruits can be safely transported in first-class chemical cold storage from the great fruit centres in the Province to the best markets of the old world.

Fruit has ruled so low in price of late, that we hail with great enthusiasm, the prospects thus held up to our view, and hope that better times are near at hand. If in 1897, this cold transportation can only be pushed forward as a commercial experiment on a large scale, and several tons of our best fruit be forwarded each week and landed in British markets in good condition, the operation can thereafter be left to take care of itself. At the request of the Hon. Sidney Fisher, a committee was appointed to give expression to the views of Ontario fruit growers regarding details of carrying on this scheme.

Dr. Saunders, Director of the Dominion Experimental Farms, was present, and took several opportunities of addressing the Convention. The Doctor is one of our most valued visitors, his general knowledge of both theoretical and practical fruit culture, and his special acquaintance with chemistry, and entomology, are of the greatest value to us all. Mr. John Craig, of Ottawa, gave a most valuable paper on "Orchard Cover Crops," giving the following as those succeeding best in the vicinity of Ottawa, viz.: Alfalfa, Mammoth, Red clover, Alsike and orchard. Crimson clover, which may endure in Southern Ontario, is too tender to give good results at the north.

These, and numerous other topics were discussed at the meeting, and will appear in detail in our next Annual Report.

FIG. 1039.—MAYOR ELLIOTT.

On Friday afternoon the curteous representative of the city, His Worship, Mayor Elliot, provided a procession of cabs and took the fruit growers for an excursion to see the city.

Among other interesting places visited was the "Asylum for the Insane," one of those immense provincial institutions for the comfort of the unfortunate ones of our fellows, which have been placed at convenient points by the benevolent and kind hearted people of Ontario. Excellent order and perfect discipline seemed to be the rule in every department of this institution and reflects credit on the management.

We also visited the famous Kingston Penitentiary. The Warden was very obliging and took us to see many departments of great interest. It seemed a small supper for a workman, as each squad of men filed in from their corridors, carrying each, a chunk of bread

Fig. 1040.—Kingston Hospital for the Insane.

and a tin mug of tea, but perhaps it is all they deserve. We saw them locked in their narrow cells for the night, and came away glad to learn from the Warden that gardeners and fruit growers were not found among the convicts.

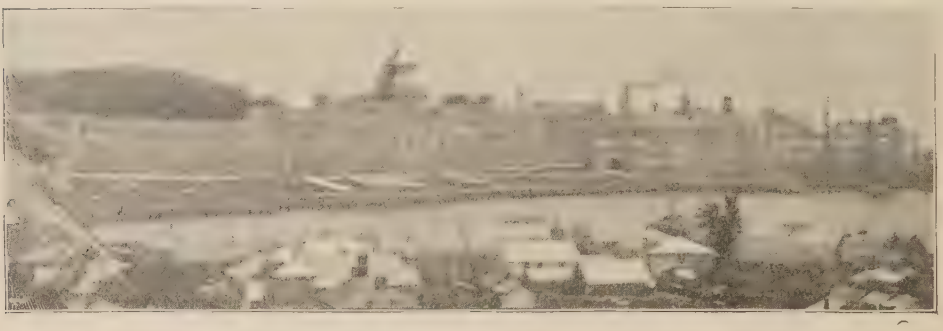

FIG. 1041.—KINGSTON PENITENTIARY FROM PORTSMOUTH.

NUT CULTURE.

THERE is much encouragement to plant our native nuts and some of the foreign ones. As a rule, our indigenous trees are good bearers, and, in Mr. Van Deman's opinion, they produce nuts of better quality than foreign ones. The Chestnut is receiving much attention now, and there are a few well-marked native varieties of value. Although they are smaller than the European varieties, they are of better quality and very productive. The best are Delaney, Excelsior, Griffin, Hathaway, Morrell and Otto. Rocky hillsides and other places unsuitable for tillage can be used with profit for nut trees, and they can be set about buildings and in pastures. The European varieties seem more profitable. It seems to be a rule that the more pubescence the nut has the better its quality. European varieties are more fuzzy than the Japanese, and less so than the American sorts. The most prominent of these are the Paragon, Numbo, Ridgely and Hannum. Japanese Chestnut-trees have a more dwarf habit, and the nut has a bitter skin. They graft quite readily on American seedlings, and the best varieties introduced are Alpha, Early Reliance, Grand and Superb. Among the Hickories the best nut-tree is the Pecan, a native of our southern states, and the Shell-bark Hickory, common throughout the north-eastern states. A firm in Pennsylvania ships more than twenty tons of hickory nuts every year. The nuts should be planted in rough places four feet apart each way and thinned as they grow. Seedlings are variable, and so they must be grafted. The principal varieties are Hale's, a large thin-shelled sort, Leaming, Curtis, Elliott and Mulford. Among the Walnuts, our native Butternuts may, perhaps, be improved, but the so-called English Walnut is the best of the family, although it is difficult to grow as far north as New York. There is no doubt that nut-trees are hard to graft and to bud. Evaporation should be prevented until the sap begins to flow. When the sap starts the grafts should be put in underground. The scions should be cut so as to have the pith all on one side, or, if necessary to graft above the ground, they should be covered well to prevent all evaporation possible.—Western New York Hort. Soc.

MAKING CIDER VINEGAR.

Would you please tell me in THE CANADIAN HORTICULTURIST, the best way to make cider vinegar? Please give full instructions.
W. J. K., *Renfrew.*

Although cider vinegar is being constantly made by fruit growers in Ontario, methods vary, and we cannot reply better than by giving our correspondent the following directions by a competent writer in the American Agriculturist :—

Vinegar is a weak solution of acetic acid, which is produced by the action of a minute vegetable germ on the sugar contained in the liquid to be acidified. This germ changes the sugar into alcohol, first, and this by further action becomes acetic acid. The germs when accumulated into a mass appear as a kind of soft jelly-like substance which is found in the vessels in which vinegar has been made and kept, and is commonly called the "mother" of vinegar, which it really is in fact. When dried, these germs, which are so small as to be invisible, float off into the air, and as the supply of them is inexhaustibly kept up by the constant souring of various matters containing sugar, all that is necessary is to expose some sweet liquid to the air and it will at once begin to ferment and finally will sour, making what we call vinegar.

Vinegar is a very wholesome substance, and is believed to have a useful effect on the digestive process, and thus we instinctively desire it in our food. But as it is rather difficult to procure it pure and free from injurious mineral acids, it is much safer to make it from fruit cider. Cider vinegar has a small quantity of malic or apple acid in it, and this makes it more agreeable. In making vinegar from cider only the very best should be used. This is only made from ripe apples, quite free from decay and the common worms often found in the fruit chosen for vinegar making.

FIG. 1042.—QUICK METHOD OF MAKING CIDER VINEGAR.

The most perfect cleanliness should be followed with all food substances, for such is the unaccountable number of ways in which germs, bad as well as good, affect the health, that no risks should be run of harm from injurious matters taken into the stomachs. The cider should be filtered through fine, clean, sharp sand, by which all the finest numerable quantities. There are several ways of doing this. But the quickest way is generally most desired. The store barrels are placed where six, or more, feet of space may be had below them. A faucet is fitted into each barrel. An open tub is set under the barrel, and a sloping board, or several of them, are arranged to lead a fine

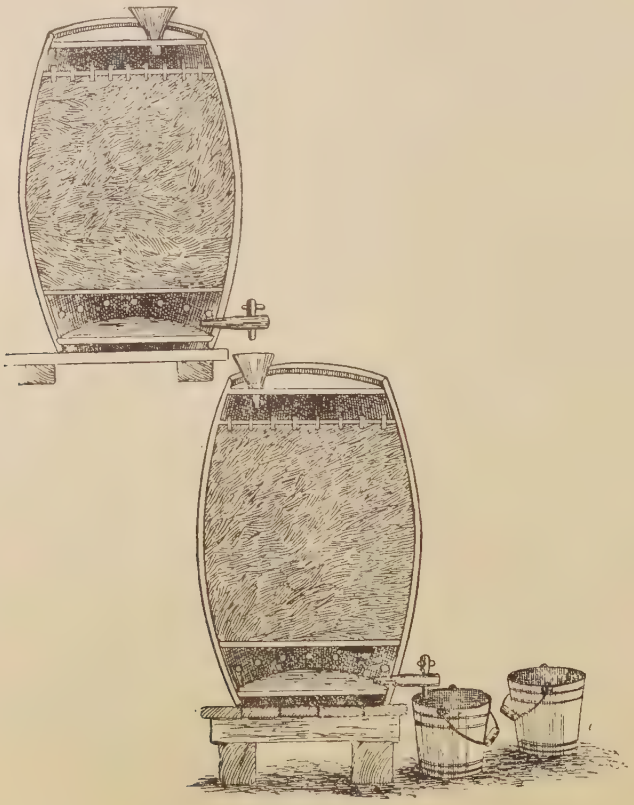

FIG. 1043.—

part of the pomace is separated, and other impurities that would form a good deal of sediment in the vinegar are got rid of; and then stored in perfectly clean barrels.

All that is required, then, to make cider vinegar is to expose the cider to the air, from which the active germs of fermentation are gathered without any trouble. They exist in the air in in- stream of the cider down these boards into the tub. To lessen the time still more, two of these tubs may be used, one below the other so as to expose the cider twice as long to the air. The tub should be large enough to hold as much as will flow in twelve, or twenty-four hours, and when it is nearly filled, the partly made vinegar is carried or pumped up into the barrel again. In this way,

with a temperature of 80° F., good vinegar is made in three or four days, and when barrelled or put in suitable close vessels, it will keep improving in strength for years. [This method is shown in the annexed illustration, Fig. 1042.]

For a larger quantity of vinegar another method, but on the same principle with a larger exposure to the air, may be used. This consists of a series of vats placed one below the other (Fig. 1043), so that the liquid may run from one to the other into a receptacle at the bottom. The intention is to have the greatest possible exposure of the liquid to the air. This is secured by filling the vats with beech shavings, or birch twigs, through which the liquid trickles slowly. Air is circulated through the vats by means of holes bored near the bottom, just above the level of the pipe through which the young vinegar flows into the next vat. At the top of each vat there is a board pierced with holes above the shavings, and the liquid flows in thin streams down through these holes. Between these holes there are a number of glass tubes fitted, and the air admitted through the holes below escapes through these tubes, thus affording a constant supply of oxygen. Nothing can be done without pure air, for it supplies the oxygen needed for the change of the sugar into vinegar. The more air passes through the trickling vinegar the more rapidly and better the vinegar is made. In a very small way good vinegar may be made in a stone jar, kept in a warm closet by partly filling it with cider and putting in it a piece of brown paper dipped in common yeast. This starts the fermentation at once, and the growth of the vinegar plant is quite rapid. If some of this plant can be procured from an old vinegar jar, the yeast will not be required. Then as soon as the vinegar is made, the jar is replenished by as much cider as the vinegar taken out, and a sort of perpetual source of vinegar is secured as long as the stock remains to supply the jar. As vinegar is almost always adulterated, and the material used for this purpose is sulphuric acid, a virulent poison, every family should be supplied with a homemade article, and when cider cannot be procured common molasses or sugar will make a very good substitute. One part of molasses to ten of soft or rain water, with half as much yeast as molasses, makes an excellent stock for vinegar. It may be treated in the way above described. Maple sap boiled down to one-half, or with one part of molasses to twenty of the sap, makes a pleasant vinegar. Much of the vinegar of commerce is made from whiskey, and is at first as clear as water, but is colored and flavored to imitate cider vinegar.

YELLOWSTONE PARK is destined to become a great touring ground for cyclists. A system of fine roads has just been completed about the wonderland and the best way to admire its beauties and marvels is from the saddle of a bicycle. At one place the road is hewn from the solid rock along the walls of a canyon at a cost of $16,000 a mile. At another point it is blasted from solid glass, the obsidian cliffs, the only glass mountains in the world.

THE FARMER'S GOLD MINE.

THE farm has often been compared to a gold mine, and very properly too, but a gold mine is worth just so much less for each dollar's worth of ore that is taken out of it. The same is nearly as true of the farmer's gold mine. Every crop, every animal, every pound of butter and dozen of eggs that leave the farm, rob it of just so much of its fertility as they contain. And what is this fertility? Where does it come from, and how can we replace it? These are questions which we should all understand fully, and be able to answer them by actual demonstration. With the exception of lime, iron and a few other elements that are usually in superabundance in the soil of most farms, they are *nitrogen*, *potash* and *phosphoric acid*. All of these are absolutely indispensable to the growing of every crop, and to the existence of every living thing, whether animal or vegetable. Nature is generous, and has furnished a large supply of them within our reach, but we must know where they are, when we need them, and how to get them most cheaply.

Nitrogen is far the most costly, and yet it is the most abundant, as four-fifths of the air is composed of it, but in its common and gaseous form, which is beyond our reach, except through the clovers, peas, and other pod-bearing plants that have the peculiar ability to gather and store it in their structures. The bodies of animals contain it in the form of ammonia chiefly, and all their excrements are more or less rich in it. Combined in certain minerals, it is found as nitrate of soda, etc.

Potash is found in every arable soil in fair proportions, but not always in abundance, nor in the most available condition. If one of the three things named is more important than another, it is potash, for it seems to be the backbone of all manures, whether home made or commercial. Frequent stirring of the soil helps to liberate that which is locked in the mineral particles of the earth. That is one of the ways of extracting the gold from the ores of the farmer's gold mine The ashes of trees and all other vegetable matter contain potash. But the great mines of Germany contain the most condensed and available supplies of it so far discovered.

Phosphoric acid is also found in the soil, in the bones of animals, in the phosphate quarries, and in wood ashes. Cultivation will unlock the combinations in which nature has secured it, but not often easily or so completely as we would desire. In order to get the wealth from the mines upon the farm, we must in many cases resort to outside help. We must grow the clovers, cow-peas, etc., to get from the air what nitrogen is possible. We must make and save all the animal manures that can be produced at home. When outside aid is called in by the purchase of chemical or commercial manures, then the cheapest sources are the muriate, and sulphate of potash, and kainit, for potash ; and dissolved bone, bone-black and dissolved phosphate rock for phosphoric acid. These, and slaughter-house refuse of various kinds for nitrogen, will enable the gold miner on the farm to get out the shining particles, with here and there a solid nugget, in the shape of good crops. Then, if those crops are fed on the farm, and only fat stock sold, instead of grain, with fruits and vegetables (which are mostly water), the fertility may be kept up indefinitely. Thus, instead of the farm mine becoming exhausted, it may, with good management, return profitable yearly dividends, and become richer as the years go on.

Washington. H. E. VAN DEMAN.

COLD STORAGE TRANSPORTATION.

ONE of the most encouraging prospects now before the Ontario fruit grower is that of soon being able to export to Great Britain in perfect cold storage his choicest fruits. This season our fruit growers have waked up to the possibility of over production of some of our finest fruits. Our magnificent Bartletts have been begging for buyers at 25 cents a twelve quart basket, beautiful Concord grapes at one cent a pound, Lombard plums at 15 cents a twelve quart basket, and our world renowned apples at 40 cents a barrel!

At this stage, fortunately, the Dominion Minister of Agriculture comes to the rescue and offers to help us reach the best markets of the world.

At the meeting at Kingston, certain questions were propounded by the Hon. Sidney Fisher, viz:—

1. Will cold storage warehouses be required outside of shipping centres?

2. What amount of space will be needed on railways and steamships during the year 1896, and what quantity of fruit should be forwarded per week or month, to make a fair commercial experiment?

3. During what length of time will cold storage service be required, and about what date could the first regular shipment be expected?

4. Will refrigerator service be needed in winter?

To discuss these questions and communicate the result to the Minister, the following Committee was appointed at the meeting at Kingston, viz.:—

L. Woolverton, W. M. Orr, Geo. E. Fisher, A. H Pettit, E. D. Smith.

Regarding the establishment of District Cold Storage Warehouses, Mr. James Robertson wrote under date of Oct. 29, asking whether a number of fruit growers in several different districts would form themselves into Joint Stock Companies, for the purpose of erecting and operating district cold storage warehouses for fruit. He said, "I think a building sufficient to hold twenty-five carloads could be erected and equipped with the requisite mechanical refrigerating plant at a cost of between $5,000 and $6,000. The charges for the storage of fruit, when the warehouses were at all largely used, would yield a revenue sufficient to pay the operating expenses, and a fair interest on the investment.

Would a guarantee by the Government of say 5 per cent. on the cost of the cold storage warehouses, for three years, in case they did not earn enough to pay 5 per cent. dividend, be a sufficient inducement, or could aid be given in any more effective manner?"

Now we would like an expression of opinion from our leading fruit growers. Shall first class, large cold storage warehouses be placed in our large cities, such as Toronto, Hamilton, and London; or shall small ones be scattered among our villages? When the Committee reaches a decision, we will publish it. In the meantime we publish a letter on the subject from Mr. E. D. Smith, of Winona, one of our leading shippers.

SIR,—Your esteemed favor to hand, asking if the Government should form a scheme for the transportation of fruit in cold storage to Britain, would a stock company with a capital of $5,000 or $6,000 be likely to be formed at Winona if guaranteed interest at 5% for 3 years. I scarcely think so until the success of placing our perishable fruits on the British market has been more fully tested. My idea is this: If suitable storage warehouses were erected in Hamilton and possibly another at St. Catharines, and tests made for 2 or 3 years, to see if the British market will take our fruits at profitable prices; whether they

can be landed there in sound condition by this system; then, if successful, there will be no difficulty in having store houses built at Winona, and, I fancy, almost every station along the line if necessary, but for purposes of experiment it seems to me that the fresh fruit could be loaded directly into the cars at the stations. It seems to me the essential point is to get proper dry, cold storage between here and Montreal, and between Montreal and the port of debarkation, and again immediately it is landed there with as quick change as possible from cars to boat, and boat to storage house. Growers would not care to put money into anything of that nature, when a test could be made without this money being put in. I have every faith that we can grow in this Province of Ontario thousands of barrels of Bartlett pears, Anjou pears, and, I believe, Clapp's Favorite and put them on the British market with cold storage, and get handsome returns, but the system must be perfect. There would be no trouble in putting it on the cars in perfect condition. As for grapes, all they require is cool, ventilated chambers, perfectly dry, with a temperature of about 40°, although I am satisfied they will carry perfectly in a temperature of 50° to 60°, if there is a good circulation of pure air, and I still have faith that, if persisted in, our black Roger grapes especially will find a good market in Britain, and these varieties can be grown almost, if not quite, as readily as any other sorts. I see no reason why, with proper cold storage, too, our peaches could not be landed there, and compete with California peaches.

I trust something may come of this scheme.

E. D. Smith, *Winona.*

WINTER PRUNING.

WILL pear, plum, apple, or cherry be damaged by winter pruning when the limbs are small?

Prof. Slayton: Yes, sir. Experiments show that any pruning done between November and the 1st of April, on any of the seed-fruit trees, is an injury. January and December are the worst months. You can see samples in the Farmers' Club room at Grand Rapids, where the bark is killed a quarter of an inch or more in pruning done in January. In March, not so far—about an eighth of an inch; pruning done in April healed slowly; in May, very well, and in June and October, best of all. It healed pretty fairly in July, and some very well in August, a little in September, and the October healing was very good, but not quite so good as the June pruning. The December limbs that were cut died absolutely. The January pruning was the next worst, in being killed around the cut.

Mr Rice: I pruned large shade trees in December and had bad results. They were Carolina poplar, which is one of the hardiest trees in the world.—Mich. Hort. Soc.

PRESERVING FENCE POSTS.

IN building a fence around my orchard, several years ago, I tried many plan for preserving the posts. Having occasion to remove the fence this winter, I noted the condition of the posts as follows: Those set with no preparation were decayed an inch or more in thickness; those coated with a thick whitewash were better preserved, but were quite seriously attacked by worms, the posts coated with hot tar were perfectly sound as when first put in to the ground; those painted with petroleum and kerosene were equally sound and as good as new. In the future I shall let all my posts get thoroughly dry, and then with a pan of cheap kerosene and a whitewash brush, give the lower third of the post (the part that goes into the ground) two or three liberal applications of the oil, letting it soak in well each time. Posts so treated will not be troubled by worms or insects of any kind, and will resist decay to a remarkable degree. This is the simplest, easiest, cheapest and best method of preservation.

W. J. Bennett.

Putnam County, N. Y.

SWEET PEAS.

FIG. 1044.—SWEET PEAS.

ANY observant gardener who has studied the catalogues for the last five or six years, will have noticed the great increase in the varieties of Sweet Peas offered for sale. Dealers who listed ten or twelve kinds in 1890, now catalogue seventy or eighty varieties, and every year is adding to the number. No less than twenty new kinds were offered for sale this year for the first time. There is now considerably over one hundred named varieties in the market, and Mr. Eckford — who has originated the majority of the best new kinds—has promised several more for next season, which are said to be finer than any heretofore offered.

Up to ten years ago all varieties were of the one type in form and habit of growth, a tall growing vine climbing by means of tendrils over anything that came in its way in its efforts to get as near the sun as possible, bearing flowers with a broad roundish petal at the back called the standard, two smaller petals called wings which bend forward as if to protect the central portion, formed by two petals joined together, called the keel, inside of which are the essential organs of the flower—the stamens and pistil. The first departure from this type was in the so-called double Sweet Peas, in which the single standard is multiplied two or three times; these have not proved satisfactory, a very small percentage of the seeds produced double flowers, and there is no increase in the attractiveness of the blossom.

A great beauty in the sweet pea is the straight smooth standard which sets off so well the varied colors of the wings and keel; any improvement must come not from multiplying the parts, it is now perfect in shape, but from new combinations of colors, more flowers on the stalk, and more substance in the petals.

Another departure from the type of growth is the much advertised dwarf "Cupid," which has signally failed

to justify the claims made for it; it is undeniably a dwarf, forming a mat of 12 to 18 inches diameter on the surface of the ground, and is interesting on that account; but in every other respect it is a disappointment, four-fifths of the seed sown in this locality were unfertile, the flowers are small and the stalk short; in every way it is inferior to Emily Henderson or Blanche Burpee.

The causes of the great popularity of the sweet pea are not far to seek. No other flower combines so many points of excellence, in beauty of form, beauty and variety of coloring, exquisite perfume, convenience for cutting, and durability after cutting—they can easily be kept fresh for a week—it is unequalled, and if properly cared for, the quantity that can be taken from even a small row is enormous.

A correspondent of Garden and Forest kept a record of the stalks pulled from a row 60 feet long, from June 11th to October 20th, when the last one was picked; the total was nearly 50,000, besides a large number that were allowed to go to seed. From no other flower could we get the same profusion of color and fragrance.

The best soil for growing sweet peas is a good heavy clay loam, rich and capable of retaining moisture, as it is only by keeping the roots cool and moist that we can succeed in having them in bloom the whole season. If the soil is not very rich, put on a good allowance of well decomposed stable manure the previous fall, dig it deeply in and mix thoroughly with the soil, as they do not take kindly to manure in contact with the roots; if not applied till the spring, bury it deeply several inches below the seed bed. If you want to feed them extra well, a dressing in the spring of a fertilizer rich in potash—or wood ashes—makes stronger and more vigorous plants.

Plant as early in the spring as the ground can be worked, they are quite hardy, and will stand several degrees of frost without injury; indeed, in dry ground where water does not lie, they may be planted in the fall with perfect safety. Make a trench three inches deep, drop the seeds two inches apart, cover one inch deep at first and do not fill in the other two inches till the plants are well up above the ground. If all the seeds grow pull out every second one—or transplant to another place if wanted—after all danger from cutworms is over—as four inches apart is close enough for the best results.

If your soil is light and sandy it will be necessary to plant much deeper. Make the trench six inches deep and fill in a little at a time as the plants grow, taking care not to cover them with the earth.

The soil must never be allowed to become dry. The frequent use of a sharp rake keeps the surface open and prevents excessive evaporation; but, in addition, water must be supplied liberally after the middle of June, unless in unusually wet seasons. Don't waste the soapsuds on washday, it makes one of the best fertilizers.

Some of the new varieties grow so tall—in good soil as high as 6 to 8 feet—that it is necessary to provide support for them not less than six feet high. The most convenient trellis material is poultry netting with a two-inch mesh, fastened to stout posts, firmly set in the ground, with a top rail to keep the posts rigid, so that the netting can be stretched smooth.

A very handy trellis can be made from seven or eight feet of netting, bent in the form of a cylinder and the ends twisted together, with a stout wire hoop at each end to keep it in shape. This set on end, fastened to a stake to keep it upright and the peas planted around

the outside, makes a very pretty object in the garden when covered with flowers of one or two varieties. A great advantage of this style of trellis is that it can be set up anywhere on a few square feet of ground, and can be shifted from place to place as wanted each season. If one is willing to take the trouble to tie the vines to wires, an ordinary grape vine trellis does very well, with the wires about eight inches apart.

The insect enemies of the sweet pea are few in number ; cutworms are sometimes troublesome, when numerous they may easily be poisoned by placing little bundles of any succulent weed dipped in Paris green and water and laid every two or three feet along the rows, or they may be dug out in the usual way.

A more serious evil to contend against is the blight ; this is only troublesome in very light soils, or where peas have been grown several years in succession in the same place. It first appears when the plants are about a foot high, the leaves turn yellow, then brown, and, in bad cases, the whole plant becomes black and dies. There is not much known about the causes or nature of the disease, or how to cure it when it appears ; probably spraying with Bordeaux mixture is as good a remedy as is available.

A great deal of what is taken for blight is really caused by that pest of the greenhouse and window garden—red spider ; it is so insignificant in size, that it is seldom observed unless looked for, even then it takes good eyesight to locate him, though the results of his presence are evident enough. Fortunately it is very easily kept in check ; a vigorous spraying now and then from the waterworks hose, if available, or from a spray pump is all that is necessary.

In describing varieties, shapes and colors run into one another so much, that it is somewhat difficult to classify them. In colors, white, red, yellow and blue are so inextricably mixed and blended, that any classification founded on colors is unsatisfactory.

In shape, there are three fairly well marked divisions ; the first, from which all the newer varieties are derived, has the standard somewhat wedge-shaped and bent back from the rest of the flower, or reflexed, as in Painted Lady ; the second, of which Blanche Burpee is a good representative, has the standard straight and erect, with the wings and keel close up to it. In the third form, as in Lottie Eckford, the standard is inclined forward at the edge, as if to envelope the wings ; this is known as the hooded form ; many of the most admired new sorts belong to this class. In some cases this tendency of the standard to curve forward is carried so far as to form a roll on each side, as in Oddity ; when the bending forward is carried to such an extent, it may be interesting to the specialist from its oddity, but it certainly could not be called beautiful.

Whether you plant named varieties or mixed, be sure to plant enough. You will be surprised at the number that can be used as cut flowers, not only in your own household, but by your friends. I have yet to see the visitor to my garden that was not delighted to get a bouquet of sweet peas. Give them away freely. If you want to have an abundance of flowers all summer, they must be picked frequently ; never allow them to go to seed. If you plant them mixed, get the best Eckford mixture ; but it is much more satisfactory to buy named varieties, as you can then select such colors as you prefer. Most of the mixtures have too large a proportion of dark colors for the best effect ; in my opinion, not less than four-fifths of a collection should be of light or medium shades.

In making a selection from the many varieties offered for sale, a great deal will depend on the individual taste of the grower, what colors one prefers, and also on the amount of space that is available. To grow anything of a large collection requires a long stretch of trellis ; a weak growing kind is apt to be overgrown by a stronger neighbor, unless there is about five feet allowed to each kind.

Probably a collection of twelve sorts would satisfy the desires of the average grower ; for variety in that number a very fair representation of the different shapes and colors can be had.

Leaving out of consideration the six new kinds sent out this year by Mr. Eckford, as very few growers would care to pay the price asked for them—2/6 stg. the package—I would recommend as the best out of seventy varieties grown by me this season, the following twelve;

1st. *Blanche Burpee*, decidedly the best white to date, of large size, fine form, good substance and a profuse bloomer.

2nd. *Primrose*, pale primrose yellow, a very delicate and handsome flower ; by some, Mrs. Eckford is considered a better yellow, but it has not done so well with me.

3rd. *Ramona*, a new Californian variety sent out this year, of largest size, slightly hooded form, color white, with faint rose-pink lines on the standard, a lovely flower, strong, vigorous grower and profuse bloomer.

4th. *America*, also a new one from California, the best red and white stripe, white ground with brilliant blood-red stripes, a most effective flower either in a bouquet or on the trellis.

5th. *Princess Beatrice*, pale blush and pink, an old favorite, much grown by florists for cut flowers.

6th. *Lottie Eckford*, white suffused with lavender standard and wings, with a delicate blue edge, a most exquisite flower.

7th. *Countess of Radnor* standard, a clear lavender, wings a little darker, good size, hooded form, the best of the lavenders.

8th. *Katherine Tracy*, new last season, by far the best pink to date, of largest size, good shape, clear rich pink all over, the most profuse bloomer in my collection, shou'd be in every garden.

9th. *Lady Beaconsfield*, salmon pink and primrose, not of large size, but fine form and a charming combination of color.

10th. *Lady Penzance*, a cherry pink with pale carmine veining, a unique color, good form and profuse bloomer.

11th. *Fire Fly*, the best red to date, not large in size or of the best shape, but very brilliant in color.

12th. *Boreatton*, the best dark sort, an old favorite, deep velvety maroon and claret.

Such a collection would require at least sixty feet of trellis, and if well grown should produce not less than 50,000 trusses in the season ; I don't think that is too many, if you have lots of friends—and what gardener has not when he has flowers to give away—you can easily dispose of a great many more than that. Of course twelve kinds does not include all that are worth growing, if you liked you could very well add another dozen to the number, every one of them desirable flowers to have. To my taste the second best dozen would be made up as follows : Lemon Queen, a fine white with a touch of yellow in it the first day after it opens. Blanche Ferry, pink and white. Daybreak, a new American variety, white and scarlet. Mrs. Gladstone, blush and pink. Splendor, deep pink. Venus, salmon pink. Princess of Wales, blue and white striped. Grey Friar, should

be bluish grey, but is often spoiled by dark stripes or blotches inherited from Senator, from which it has been selected; when perfect it is a very fine flower. Stanley, purplish maroon. Dorothy Tennant, mauve. Duke of Clarence, dark mauve and purplish blue. Captain of the Blues, the best blue.

No doubt some of you will think that it is all nonsense growing so many kinds, but I can assure you there is a great deal of pleasure to be derived from taking any of our garden flowers, sweet peas, asters, poppies, or any other flower you prefer, growing all the available varieties of it, making a thorough study of their habits and peculiarities, discarding the inferior sorts, retaining the kinds that please you most for future use. Then the next year take up some other flower, pursue the same course with it, and in a few years you will have acquired a knowledge of the floral kingdom, and developed an interest in your garden, such as you never dreamt of in the old days, when you were content to plant the same few papers of mixed seeds year after year.*

Ottawa. R. B. WHYTE.

THE WALNUT.

THE walnut is best grown from the nut, but it can also be propagated by budding, grafting and layering. Fresh gathered nuts should be selected, and they can be sown in nurseries in drills two feet apart, or better where it is intended for them to remain, as this tree makes a very strong tap-root, which, if the tree be left too long before removal, may be injured in the transplanting. A deep and perferentially a calcareous soil should be chosen, with a dry bottom. The young tree is somewhat delicate and is apt to be injured by the spring frosts. In cold districts therefore it must be protected for a year or two. Plenty of room must be allowed, as it is a vigorous grower and makes fully twenty feet in height in ten years, at which date it usually begins to bear a crop. Once established little or no attention is required, and except to remove unsightly growths no pruning is necessary. It will attain quite 100 feet in height, and lives to a great age, its productiveness increasing with its years. It is very suitable for avenue planting or as a roadside tree.—National Messenger.

SHRUBS FOR FARMERS

WE advise all our agricultural brethren to plant largely of hardy shrubbery and herbaceous perennials. They require the least attention, suffer least from insect pests, and, if treated liberally as we have advised, to well-rotted muck, barnyard leachings, or an admixture of hen droppings and ash siftings, they will give you the most satisfaction. The beds need not be renewed with the return of each season. If the work is well done when you set out the herbaceous kinds, and you give them plenty of room, they need not be lifted and divided for a period of at least five years. Shrubby perennials have woody stems. There are the deutzias, spiræas, hydrangeas, roses, mock-oranges, lilacs, snow-balls, golden-bells, tree pæonies, and many more which we find in catalogues of hardy shrubs. Let the tallest growing species be planted near the boundaries of your premises in the centre groups, or as screens to conceal unsightly objects from view.—Report Pa. of Horticultural Society.

* This paper was read before the O.F.G.A. at Kingston, and will be interesting to the members of our Horticultural Societies.—ED.

RICHARDIAS.

AMONG the many favorites for the window garden, there is perhaps none which is more generally grown in Canada than the one we call Calla Lily. Its large sagittate leaves, and its pure white spathe thrown back to disclose a bright yellow spadix, fully covered with flowers proper, make it a rich ornament to any window. No funeral decorations are thought complete without a liberal supply of the African lilies, and the length of time they will keep in a fresh condition is an additional point in their favor.

It will be a surprise to a good many to be told that the name "Calla," by which this flower is commonly known, is a misnomer, although perhaps too widespread to be corrected, except among florists. The name belongs to another species of the Arum family, viz., *Calla palustris*, or Water Arum, a low perennial herb, which, although originally introduced from Europe, is quite common in the northern United States in boggy places, but is not worthy of a place in the window garden.

FIG 1044.—VARIEGATED CALLA, RICHARDIA ALBO-MACULATA.

The *Richardia* takes the name from L. C. Richards, a French botanist, and is a genus comprising five species of marsh plants, natives of South Africa, four of which have been introduced for greenhouse cultivation.

They are of very easy cultivation, the most important point being to give them a plentiful supply of water during their

growing season. They will succeed best in a rich soil, made of a compost of good loam and cow manure in equal parts.

Richardia Africana is the proper name of the variety above referred to as most grown by amateurs. It is a winter and spring bloomer, and is usually allowed to rest in the summer months, by turning down the pot on its edge and leaving the plant without water; or it may be planted out and left without care until early fall, and then potted.

R. albo-maculata, or the white spotted Calla, is by far the best of the other three for amateur cultivation. This one is highly prized for its foliage, which has a variegated appearance, while its greenish-white spathe, though smaller than that of *R. Africana*, is still very interesting.

HYACINTHS.

HYACINTHS to bloom for Easter should be planted early this month (January). For successful blooming of the bulbs planted in pots there are two things absolutely essential, and one is that until the shoots are two inches long, about the same proportion of water should be kept around them and the bulb, keeping them from the light and air. The other requirement is that the soil in which the bulb is planted should be well mixed with sand. As soon as the bulb is planted it should be placed in a cool place and watered sparingly until it begins to shoot up its leaves, when it may be more freely supplied. After it has fairly started in a cool place it may be transferred to the sitting-room window, and in a few weeks its beauty and fragrance will fully compensate for the care bestowed upon it. The hyacinth is a native of the Levant, and was introduced into Germany early in the fifteenth century. So popular did it become that in 1700 over 2000 varieties had been propagated. It is named after Hyacinthus, whom the gods, unable to save, changed into a flower. The Greeks fancied they could perceive on the petals of this flower the notes of grief.—Detroit Tribune.

BEGONIAS FOR THE WINDOW.

IT is safe, I think, to say that Begonias are only second to Geraniums in popularity for window gardening. They are the most interesting of all easily grown plants because of the diversity of their foliage and the difference in their habit of growth, and are great favorites with the average plant lover. One of the most beautiful is B. manicata aurea. Its principal charm lies in its handsomely variegated foliage, but its delicate, lace-like blossoms are not to be despised, and altogether, with its beauty and ease of culture it is a most satisfactory plant. Another favorite is B. semperflorens gigantea rosea. It is a strong grower, and a wonderfully free bloomer; it is besides very handsome, having a vivid scarlet spot in the center of each leaf. The bright, long-stemmed blossoms harmonize admirably with the polished foliage. B. Bruanti, though seldom mentioned, and not always catalogued, is another excellent sort, thriving all winter long with little or no care and blossoming with admirable persistency. B. Thurstonii is beautiful in leaf, and makes a most shapely plant. Its coloring is very pleasing and it makes a welcome addition to the winter window garden. These are to be depended upon for the ordinary sitting-room window.—[Farm and Home.

FIG. 1045.—THE LILAC.

THE LILAC.

IN nearly every garden in Southern Ontario we find the Common lilac, Syringa vulgaris, and truly no shrub is more prized for its elegant display of beautiful flowers. The color may be either red, blue or white, the latter being particularly desirable; groups of the white lilac may be seen growing, in the garden of the old rectory of the English Church at Grimsby, and are always much admired. The common lilac was brought to England from Persia in 1597 just three hundred years ago.

The generic name Syringa is from

Greek syringos a pipe, referring to the long straight branches filled with pith, while the common English name Lilac called Persian lilac (*S. Chinensis*) grown is a Persian name for the flower. The so in many of our gardens, is probably a cross between *S. vulgaris* and *S. persica*, a Persian species. Its flowers are usually of a deep violet color.

The lilac is easily propagated from suckers, and will grow in almost any soil and situation. Still for the best results the ground should be enriched and given good cultivation.

Botanically there are only about ten species, natives of Central and Southern Europe and Asia. There are, however, great numbers of garden varieties, of great beauty, and one of our enterprising Canadian nurserymen lists no less than twenty-two fine varieties in his catalogue.

AMATEUR'S GREENHOUSE.

SIR,—Can you give me a good plan by which to build a cheap greenhouse. I want to build a lean-to against the house, but I am afraid our house is not rightly situated, for the only place is on the north side. What would a small lean-to cost? Could one be heated with a good heating coal oil stove?

G. A., *Brantford.*

Our correspondent does not seem to be well situated for a lean to greenhouse, for any side would be better than the north side of his house. It would be better, but of course more expensive, to build a separate house.

FIG. 1046.—A CHEAP GREENHOUSE

In 1890 we gave a plan of a cheap lean-to greenhouse from Popular Gardening, and here re-publish the same for the good of our correspondent.

Size of building 9 x 16 feet, being a lean-to against the dwelling. Cost $28.50 complete, including the heating contrivance, which consists of kerosene oil stoves and drum with connecting hot-air pipe about twelve feet in length and three and a half inch in diameter inside measure.

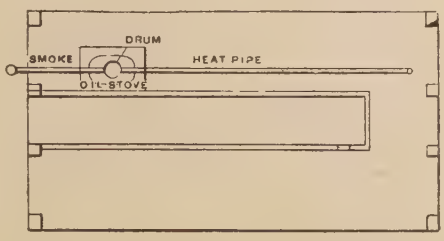

FIG. 1047.—PLAN OF GREENHOUSE.

The average cost of heating is but ten cents a night. A pipe leads from over the lamps to the outside of the building to conduct away any smoke or smell from the lamps. This pipe turns upwards outdoors, and is protected with a cap-like cover to keep the rain out.

The plan of putting up the structure was this: First, six 4 x 4 inch posts were set in the ground, resting on stones with some smaller ones between, and to these for making the sides, boards one foot wide were nailed lengthwise. Over these horizontal boards a second layer was nailed, but to have them run up and down, and with strips nailed over the joints. Two coats of paint were given to the exterior. The inside surface of the wall was covered with heavy build

ing paper, an eighth of an inch thick. Altogether this wall is so warm that during the great blizzard, which in March (1888) visited our correspondent's region, a night heat of 47° was easily maintained

Concerning the plan of heating with oil stoves, Mr. Emmerich says that in his case it is entirely satisfactory. Two small stoves, made by the Kerosene Oil Stove Co., and having two four inch wicks each, and an oil receptacle containing seven quarts to each. The drum from which the hot air pipe extends, is situated upwards from and between the lamps. While the 3½ inch pipe is effectual in conveying heat to its further end, still Mr. Emmerich is of the opinion that if it were a size larger it might be even more satisfactory.

Regarding oil lamps smoking when put to such a use, and of which some complain, no trouble has ever been realized. The lamps are kept perfectly clean, and nothing but the best 150 tested oil is used. Care is taken, however, to not have them turned up too high at any time, for if they were, naturally they would smoke. By means of the pipe leading outside all smell of the burning oil is removed.

Concerning the general success of this house, the writer says he wishes our readers could see the beauty and perfection of the many plants grown within its walls. Still it must not be forgotten that the general attention bestowed on plants has at all times quite as much to do with their success as the providing of sufficient heat and light for their wants.

THE TRITOMA.

AMONG fall blooming plants the Tritoma, or Flame plant, or Red Hot Poker plant stands out conspicuous as being the last to succumb to the approaching winter. For several years we have seen this wonderful herbaceous plant produce its bright orange spikes in profusion during the months of October and November, even after repeated frosts, and after every other plant had ceased to flower. It begins to bloom in late July or August, and only ceases when visited by a real hard frost. The hardy nature of the flower induces some to attribute to the plant greater hardiness than it really possesses; it appreciates a covering that will preserve it from superabundant moisture, it may either be dug and wintered in a cool cellar, or a box or barrel may be inverted and placed over it. It is rather impatient of a damp location in the winter. It is easily increased by division. There are several varieties of the Tritoma, but T. uvaria grandiflora is beyond a doubt the most desirable.

Hamilton. WEBSTER BROS.

FLORICULTURE and small fruit culture are pre-eminently adapted to women. There are few industries where fairer returns for capital and labor expended are more certain; few that can be so well begun with small means, and still remain capable of indefinite extension. Fine fruits and flowers are in demand. Our densely populated commercial centres, our thronged and fashionable summer resorts, are rarely if ever adequately supplied with them. As a rule, they take all they can get, and then look around for more. You might double the largest annual yield of good berries, or fine roses or carnations, with profit to the producers. The home market for products of this sort is wonderfully elastic, the demand ever keeping well abreast of the supply.—Rept. Columbus (O) H. Soc.

❋ Our Affiliated Societies. ❋

PORT DOVER.

THE Fruit Growers' Association for the Township of Woodbourne and Pt. Dover held a meeting in Town Hall, Pt. Dover, on the evening of Dec. 10th, when a programme consisting of recitations, addresses, vocal and instrumental music was given by members of the Association, assisted by Mr. H. H. Groff, of Simcoe. Mr. Groff gave us two papers, one on the "Gladioli," and the other on the "Canna,"—both were well received, being very interesting and instructive.

This meeting was held in commemoration of the event of having obtained the requisite number of names for an organized Horticultural Society, and those taking part in the meeting must have been pleased, as well as the directors of the Society, by having an audience who were appreciative of the efforts put forth by the members, as well as having a house packed to its doors. At the conclusion of the meeting a vote of thanks was tendered Mr. H. H. Groff for his valuable and instructive papers on the above subjects. Jonathan Ellis, Esq., occupied the chair. The meeting was brought to a close by all singing, "God Save the Queen,"—after an announcement of the next meeting, which will be held Jan. 13th, 8 p m, 1897, for election of officers.

J. SYMINGTON, *President.* W. F. CARPENTER, *Sec.-Treas.*

Port Dover, Dec. 20, '96.

TORONTO'S SEVENTH ANNUAL CHRYSANTHEMUM SHOW.

FOR a number of years past, one of the chief attractions in Toronto during the Thanksgiving season has been the Chrysanthemum Show held in the Pavillion in the Horticultural Gardens. The display this year surpassed in many respects all previous ones.

The number of specimen plants of chrysanthemums was probably not equal to that of last year on account of the lateness of the season. There were, however, a choice lot of plants grown to single stems in 5-in. pots. Those exhibited by the Horticultural Gardens were especially admired for their dwarf habit of growth. The variety and quality of chrysanthemum cut bloom fully equalled that of last year. The majority of prizes were divided among J. H. Dunlop, Toronto; H. Dale, Brampton, and Millar & Sons, Bracondale.

The display of roses, carnations and orchids was finer than ever before seen in Toronto. The beautiful vases of "Mermet," "Meteor," "American Beauty," "Bride," and "Bridesmaid" roses were the admired of all admirers.

Among the carnations the fine collection of seedlings grown by Millar & Sons, Bracondale, was well worthy of special mention, many of these will no doubt become popular standard varieties.

The floral designs excelled in both quantity and quality. Their beauty and artistic arrangement may be inferred from the names of some of the principal exhibitors,—Tidy & Sons, Grainger Bros. and Millar & Sons.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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Notes and Comments.

CO-OPERATION IN EXPERIMENTAL WORK.—The question of a Dominion Fruit Experimental Farm in Southern Ontario was discussed at our Kingston meeting, and it was resolved to ask the Minister of Agriculture for the Dominion to utilize the various provincial stations now established in Ontario, for special experiments, and to have a special sum placed in the estimates to be at the disposal of the Director of the Dominion Experimental Farm, for the conduct of such experiments by the provincial experimenters, under his direction.

SUDDEN DEATH OF PROF. LODEMAN.—Our readers will be grieved to learn that Mr. E. G. Lodeman, Assistant Horticulturist at Cornell University, died on the 2nd December last, in Mexico, New York State. We are much indebted to him for his help in advancing the science of spraying, and some of his bulletins have been of great value to Ontario Fruit Growers. Only last August he visited Grimsby in company with Mr. Craig, to investigate a new disease of the vine. Mr. Lodeman was a native of Switzerland, a graduate of the State Normal School of Michigan, and received the degree of Master of Science at Cornell, in 1895.

His last journey to Oswego County, New York, was for the purpose of inspecting experiments in fertilizing strawberry fields, and here, under some impulse induced by strain of work, he met his tragic end. We glean this from Garden and Forest.

OUR FLORICULTURAL DEPARTMENT will be enlarged in future, providing our readers will contribute to it. We have now about twenty-three affiliated Horticultural Societies, and the members are nearly all amateurs in floriculture, and are eager for information. Now we want to learn from each other, and by writing to this Journal notes on our successes or failures, or any experiences we have had with flowers or flowering shrubs, we will contribute to the general interest, and draw out information from others.

THE SHORT WINTER COURSE of Horticulture at the Nova Scotia School of Horticulture opens Jan. 7th. The course is practical, embracing instruction for the needs of young men engaged in farming or fruit growing. An outline of the course will be furnished on application to Prof. E. E. Faville, Wolfville. The tuition is free, and the board reasonable.

THE ANNUAL REPORT of the Bureau of Industries has come to hand. It contains the usual valuable information on weather and crops, live stock, dairy and apiary, farm rents and wages, but does not give enough statistics about the orchard and garden to satisfy the fruit grower. To these only three columns are devoted, while a whole page is given to turnips, the same to carrots, etc. To us it would be very useful and interesting to know the quantity of apples, of pears, of peaches, etc., grown in each county.

We note that the amount of orchard and garden land is increasing, about 4,000 acres being added in 1894-5, and 10,000 acres in the last ten years.

INJUSTICE TO CANADIAN FRUIT AND FRUIT TREES.—We have received from the Minister of Agriculture of British Columbia, a copy of a resolution passed by the Board of Horticulture, strongly protesting against a proclamation by His Excellency, Sir H. Robinson, Governor of Cape Colony, strictly prohibiting the importation into that country of stone fruits and trees, scions, roots, or seeds, those of, grown in and being the product of the Dominion of Canada. No doubt this has reference to Black Knot and Yellows, the former of which is seldom seen on nursery stock, and could not be carried in the fruit or in the pits; and the latter of which is not known in Canada, except in a very limited district. The Horticultural Board of B.C. claims that that province is entirely free from these diseases, and therefore a special injustice is done to that province.

THE LADY APPLE must be profitable when grown near New York City. Garden and Forest says these apples are selling at 15 cents a dozen. Never were they more brilliantly colored. Comice, Winter Nelis, and Sheldon bring $1 to $1.25 per dozen for the finest grade. Surely the Sheldons could not be kept till this date except in cold storage.

FRUIT AND FRUIT TREES — The following note concerning fruits in 1896 appears in Bul. 60, Bureau of Industries for Ontario: — The remarks in the August bulletin regarding the great yield of apples are verified by the reports just received. The yield was enormous, the market is glutted, and in many counties, more especially in Western Ontario, thousands of barrels of good apples are going to waste. The average price per barrel paid farmers is from 40 to 60 cents; extra choice bring slightly higher figures, and poorer sorts go lower. For these prices the grower is usually expected to pick the fruit, board the packers, bring in the empty barrels and carry the filled ones to the station. Some aver that it pays better to feed the fruit to live stock. The codling worm and the canker worm have been reported by a few correspondents, but the bulk of the statements regarding the quality of apples claim that the fruit is remarkably free from worms or other injury. Ice storms last winter, and the heavy bearing of this season, have caused a good many limbs to break, but fruit trees generally are in good condition. Grape vines made a vigorous growth, and the yield of fruit was abundant.

Spraying in Blossoming Time.—In open letters Mr. Holterman calls attention to the transgression of the law in certain sections. The Fruit Growers' Association has no sympathy with such violation, because the bee is the best friend of the fruit grower, and we desire to be known as its special guardians.

Newtown Pippins are a short crop this year. In Virginia the Yellow Newtown Pippin is the most valued export apple; it is known and exported under the name of the Albermarle Pippin; but this year the whole crop of this apple in the State does not amount to more than 1,000 barrels. The price for the first grade, in even this year of low prices, is $6 per barrel in New York City, and about $8 in Liverpool, according to Garden and Forest. Ordinary stock, however, of this and other winter apples, is but 60c. to $1.25 per barrel.

Regarding the Fruit Tariff, the following resolution was passed by our Association at Kingston, viz.:— M. Burrell moved, seconded by E. D. Smith, that "for the guidance of the committee appointed to appear before the tariff commission, this meeting expresses the opinion that the present import duties on fruit should be maintained as they are, with these changes: the ad valorem duty on pears and plums of twenty and twenty-five per cent. respectively be changed to a specific duty of one cent per pound, and that the duty on imported peaches be increased to two cents a pound." The resolution was carried unanimously. E. D. Smith moved, seconded by M. Pettit, that "as it is extremely important to prevent the utter ruin of Canadian nurserymen, by unfair competition of the United States nurserymen, driven to selling stock at a frightful loss by the enormous production of southern nurserymen, and as the consequence of such ruin of Canadian nurserymen, this country would be flooded with southern grown stock, which, though fine in appearance, is not at all suited for planting in Canada, this meeting is of opinion that the existing duties on such stock should be maintained." The resolution was carried without dissent.

Peaches in the Latitude of Hudson's Bay.—Mr. Arthur K. Grant, of Armstrong, B.C., writes as follows: A few peach trees planted here in favorable location have borne fruit the past two years. As this locality is over fifty degrees north, it is, I presume, the most northern point in America where this tender fruit has matured. Fifty and half degrees north would place the fruit growers of Ontario near the waters of Hudson Bay.

Cold Storage in Nova Scotia.—During the recent trip of the Hon. S. Fisher and Dr. Saunders throughout Nova Scotia, the fruit growers were met at the Horticultural School at Wolfville, and were very enthusiastic over the prospect of the cold storage accommodation proposed by the Hon. Minister for the encouragement of the export trade in fruit. The growers seemed to agree in favoring Halifax, their shipping port, as the best place for a cold storage house on a large scale, where the fruit could be kept at an even low temperature until placed in cold apartments on the steamship. We acknowledge receipt of the Acadia Fruit Grower, from the President of the Association, Mr. C. W. Bigelow, containing a full account of the above meeting.

A CURIOUS FREAK OF AN APPLE IS REPORTED IN "SCIENCE," by Mr. T. H. Lennox, of Woodstock. In an orchard near Lake Erie, a Greening tree bore Greening apples on one side, and on the other, apples of a mixed character, each apple being partly Greening and partly Talman Sweet. The different kinds occurred in sections for the most part corresponding to the carpels. A Talman Sweet tree stood near. Prof. Bailey writes he considers it an instance of what is very unusual, the immediate effect of cross pollenation.

APPLE SHIPPING COMPANY—Mr. P. Innis, of Coldbrook, Nova Scotia, writes giving particulars of a proposed company for shipping, and selling Nova Scotia apples which he believes would save the fruit growers of that province not much less than $100,000 per annum. The scheme proposed is as follows:

1. The formation of a Joint Stock Company with the object of encouraging the producer to ship and market his own apples; and having for its shareholders, principally, the farmers and fruit-growers of the Cornwallis and Annapolis Valley.
2. By combination and co operation to secure the control of as large a portion of the apple crop for shipment as possible.
3. The erection of warehouses at large shipping stations for the receiving, storing, assorting and shipping of apples.
4. The judicious regulation by one central authority of shipments in accordance with the state of the markets, and the providing suitable and well ventilated steamers for the carrying of apples.
5. The securing the full advantage of competition as regards freight rates, with the further advantage of shipping from and to any suitable port.
6. The practical extinction of middlemen's tolls, as the shareholders will, through their own officers, market their own apples and transact their own business
7. The reduction of commission and other charges in England to a minimum, consequent upon the consigning of all shipments to their own accredited agents

To carry out this scheme it is proposed to start with a capital of $50,000 in 5000 shares of $10 each. This is a small amount for the 5000 fruit growers of these districts to raise, when the benefits they will immediately derive are taken into consideration. The money will be required gradually, and as the directors—who will be appointed by the shareholders themselves—see fit; principally for the building of warehouses such as those at Cambridge and Port Williams, where apples can be handled independently of the state of the weather, and be ready for shipment whenever steamers arrive. Fruit growers know that no greater boon could be conferred on them than the erection of such warehouses, connected by a siding with the railway. It will now be for themselves to decide, by the amount of their subscriptions, whether their district can get a warehouse or not.

The providing of cold storage is no part of the scheme. When gotten up at Halifax and on the steamers, of course any shareholder at his request can have his apples shipped in cold storage, but the great bulk of our apples do not require cold storage, but well ventilated steamers, and it is only wanted for the softer kinds, such as Gravensteins, etc.

PEARS IN ENGLAND.—If we may judge from "The Fruit Grower" of London, England, pears average good prices in that market. That Journal says under date of the 23rd ult, "The extraordinary run on pears during the present season justifies special reference to the production of pears for market, since, as we have pointed out again and again, the demand for good pears is unlimited; and this is proved from the prices which have ruled during the past few months, ranging from 75c. to $1.50 per dozen fruits. Why even earlier in the season they were in demand at $2.50 to $3 50 per bushel, at these prices the demand was always greater than the supply, which, as a matter of fact, has not been satisfied this season from first to last."

Why should California fruit growers swallow all the advantages of this excellent market for fine pears, while we Canadian fruit growers, with fruit of finer flavor, if not so attractive an exterior, are compelled to sacrifice our fruits at losing prices. We have hope that the schemes now under consideration for cold storage transportation to Great Britain will meet our needs, and give us an opening for the disposal of our fruits to the best possible advantage.

Question Drawer.

Wolf River.

894. SIR,—I see in the magazine several inquiries about Wolf River apple. I find it to be far ahead of Wealthy, both in size and quality. It has some red streaks, but does not color as highly as I expected.

JAMES WALKER,
Fairville, St. John, N.B.

Wolf River as we saw it at the World's Fair, was much larger than Wealthy, and very highly colored; but not so long a keeper. We think it should be classed among the fall apples.

Poplar Roots.

895. SIR,—Will you kindly advise me how to destroy the vitality of poplar roots? Some trees on my place were cut down this fall, but the roots were not destroyed. How can it best be done?

C. E. G., *Strathroy.*

Had these trees been cut down in midsummer, the roots would probably have lost most of their vitality through the shock. We would advise cutting down all sprouts in midsummer.

Raspberry and Blackberry for Simcoe.

896. SIR,—What variety of raspberry, and what of blackberry would you recommend for this section of country?

JOHN REID,
Everett, Ont.

We would advise you to try the Turner raspberry and the Snyder blackberry. Possibly you could succeed with the Cuthbert raspberry, a more productive variety than Turner.

Native or Foreign Plum Stock.

897. SIR,—What advantage is there in grafting cions on wild natives, over using imported stock?

H. SAUNDERS,
Fairbanks.

We know no advantage except that the natives are hardier and less liable to winter kill in cold sections. We shall be glad of more light from any reader.

One Year Old Pear Trees.

898. SIR,—Would you advise planting one year pear trees in preference to two or three year old trees?

H. SAUNDERS.

It is just a question of expense. One year old pear trees are too small to plant out in an orchard and be cultivated as they should be. If you can buy such trees enough cheaper than three year old trees to pay you for planting them in good rich soil in nursery rows on your own place, and grow them a year or two, all right. Pear trees should be once or even twice transplanted in nursery rows before being set in an orchard, in order to encourage the formation of fibrous roots, but this is so expensive that nursery men seldom do it in practice. You could do this yourself, if you buy yearling trees.

Varieties of Pears for York County.

899. SIR,—What varieties of pears would you advise me to plant? Some advise Bartlett, Flemish Beauty, Clapp's Favorite, and Anjou? Can I control scab on Flemish Beauty pears by spraying?

H. SAUNDERS.

The list of pears recommended to you is good. You might add Giffard for an earlier variety than Clapp's Favorite or Bartlett, and Lawrence for an early winter dessert variety. You can control the scab to a very large extent by spraying four or five times with the Bordeaux mixture.

Apples and Plums.

900. SIR,—Would you kindly try and find out from some fruit grower if Starke Fallawater, Ontario, Utters large Red, Delaware Red, York Imperial, and Scott's Winter apple trees are early, abundant, and regular bearers, or which are the best. Also, Bradshaw, Washington, Shipper's Pride Plums, which are best as abundant and regular bearers. Also, whether Cuthbert, Golden Queen, and Shaffer's Raspberries, are the best varieties. I have plenty Ben Davis, Baldwin and Pewaukee apple trees. I want to get more apple and plum trees to plant next spring, and I want to get the very best early and abundant and regular bearers. I take THE HORTICULTURIST, but cannot get this information in the journal so far, and if you would please ask some reliable fruit grower, and let me hear, you will confer a favor on, yours truly.

THOS. F. CHAPIN, *Lisle.*

The Ontario is an early and regular bearer; it is one of the best for profit. Fallawater is neither an abundant or a regular bearer. Stark is counted one of the profitable export apples at our Bay of Quinte Station.

The other three varieties have not been sufficiently tested in our province to furnish a reliable reply. The three varieties of plums are all about equally valuable. Of raspberries the Cuthbert is best for main crop, Marlboro' for early, and Shaffer for canning.

Will some of our growers add their experiences?

Tarred Paper for Mice.

901. SIR,—I notice in THE HORTICULTURIST, that tarred paper is suggested as a preventive for mice gnawing fruit trees. My experience is, that it will not only keep the mice away, but will injure young trees as well. I wish some of your correspondents would give a remedy for this evil, that is simple, cheap, and effective.

WM. B. LEAVENS, *Chisholm, Ont.*

Our own plan is a very simple and effective one. We simply clear away all rubbish and then place a mound of fine earth about the trunk of each tree. This can be done quickly with a sharp spade. We have practiced it for thirty years and never lost a tree by mice where properly done.

An Early Grape Wanted.

902. SIR,—I have a vigorous growing Isabella grape vine, but which, owing I suppose to the shortness of our seasons, fails to ripen the quarter part of its fruit. I propose to graft it to some earlier, and better variety. I shall feel obliged by your giving me name of the most desirable grape for my purpose.

GEO. THOMSON,
Wolfville, Nova Scotia.

Moore's Early is one of the best early black grapes; Lindley is one of the best early red, and Lady one of the best early white varieties.

Covering Grapes.

903. SIR,—Is it necessary to cover grape vines in winter, and is it the practice of all large growers.

E. F., *Brantford.*

In Southern Ontario, at least south of Hamilton, in favored localities, there is not the slightest necessity of covering the vines for winter protection, nor do our vineyardists practice this custom. Further north it is best to give winter protection in this way in order to obtain the best results.

Keeping Celery.

904. SIR,—What is the best way to pack celery for the winter?

E. FRENCH, *Brantford.*

That intended for late keeping should be left in the rows as late as possible, and packed in dirt half way up the stalks, and kept at a temperature of about 40°. Or, it may be stored in trenches outside. The trench is dug in a dry place, a foot wide, and as deep as the plants are tall. Set the celery plants in rows across the trench, close together. As the cold weather increases cover with leaves, and short boards, and earth over all. It may then be taken out as wanted through the winter.

Leached Ashes.

905. SIR,—My garden has been filled in about one foot from an excavation running from 2 to 3 feet, and the soil though not blue clay, is poor. I can get any quantity of leached ashes from an adjacent potash factory for 15 cents a load. I have already covered the garden one inch in depth, having put on about 28 loads, the garden being 60 feet by 100. Would it be advisable to haul more in the spring? Could I injure the land by too much?

It might be possible to give an overdose of unleached ashes, but in our opinion it would be quite safe to work in as much more of the leached ashes, and get beneficial results.

Cutworms.

906. SIR,—Could you kindly inform me whether lime or salt is best suited for land where the cutworm does harm? Or do you know of anything better suited to destroy the cutworm? It was the worst enemy I had to contend with in my garden.

JOHN REID, *Everett.*

Reply by Prof. J. H. Panton, O. A. C., Guelph.

There are many species of cutworms, some of which are very troublesome in the garden and in the field. The moths from which they come lay their eggs during midsummer; these soon hatch and the larvæ feed upon the roots and tender shoots of plants. When cold weather arrives, they bury themselves in the ground and pass the winter. In spring they re-appear and become destructive. When the larvæ are full grown (about June) they go down into the ground and enter the pupa stage, from which they emerge about August, and deposit their eggs, often in grass fields, on the grass stalks. Hence they are usually found in crops following sod. They are not observed in the sod field, because they have plenty of food; but when the field is sown with a new crop, they at once become destructive, by feeding upon the young plants.

The larvæ (worms) are about one-and-a-half inches long, smooth, naked, and presenting a greasy-looking appearance. The color varies, but is generally some shade of green, gray, brown, or black; most are night feeders; when disturbed, they curl up at both ends. They eat off the plant at the surface or a little below, suck the juice from the lower part, and let the rest wilt. The moths usually have the front wings of a mottled gray appearance, with some spots; the hind wings are of a much lighter color. The expanded wings measure one to two-and-a-half inches across. The above is the life history of most cutworms.

REMEDIES.

1. Fall ploughing, the earlier the better, so as to disturb and starve them before going into winter quarters. This refers to fields likely to be infested.

2. Plant with corn and use a top-dressing of salt. Salt to some extent kills the worms or drives them off and gives the plants a chance to get a good start.

3. Where practicable, poisoned baits may be used, such as small bunches of clover, cabbage leaves, etc., dipped in Paris green solution (1 lb. Paris green to 100 gals. water), and placed where worms will feed upon them and be destroyed.

4. Some make a mixture of 1 part Paris green and 50 parts bran (by weight), add water and mix, having it thick enough to dip out without dripping. A little sugar added to water improves the mixture. Cutworms are fond of this, and will eat the poison when put where they are.

5. Cabbage plants may be protected by putting a piece of paper around the stem, so as to prevent the worm getting at it.

Open Letters.

Spraying while Trees are in Blossom.

SIR,—When the Spraying Bill was passed before the House, it was done largely through the endorsation of fruit growers, and I think whatever prejudice then existed, has largely worn away since that time. It is now admitted that no good can result from spraying trees while in blossom, and if it does not injure the blossom, it is at least a loss of time and material. During the past year there has been a good deal of spraying of fruit trees while in blossom. There doubtless has been occasions when the law has been broken in ignorance, and I know of one or two instances where experimental work has been carried on, and, owing to uncertain weather, there may have been some excuse for transgressing ; but there are others who have openly and in defiance of the law, sprayed during the prohibited time. This is particularly the case with men who charge so much for spraying orchards, and they begin as early in the season as they can and continue as long as work will be given them. I have been asked to bring this matter before the Fruit Growers' Association, knowing that in this way attention of fruit growers could best be drawn to the matter. There should be fellowship between two branches of agriculture—which the greatest scientists of the world have linked together in so interesting a way. I have reference to the pollenization of blossoms by bees.

R. F. HOLTERMAN,
President Beekeepers' Association.

Fruit Growing in Scotland.

SIR,—In the fruit growing business, this has not been a profitable year. Prices were very low all round, and few if any growers have done more than make ends meet. Family expenditure will require to be met out of capital. As jam makers are likely to be well cleared out before next season, prospects are better for the coming year. At my own fruit farm at Bridge of Allan, I pulled 30 tons gooseberries, 37 tons strawberries, over 10 tons raspberries, and odds and ends of currants, etc. My apples, pears and plums are coming into bearing, that is, those first planted, and I had some very fine samples this year on the young trees. We cannot compete, however, with your apples. Our only chance is in growing early baking apples, that ill be in the market before your Canadians wrive. We have no early or even late eating ples of sufficient excellence to go alongside your Spies, Newtowns, Baldwins, Kings, etc. There was a fairly big crop of Scotch apples, also Irish apples, and prices were fair till Americans came in, when ours became quite a drug, and had to be sacrificed at prices that spelled loss to the dealers. I never saw so many American apples in evidence as this year. Every Tom, Dick and Harry is buying a barrel, while they are being hawked up and down the country at 1d. per pound, by hawkers innumerable. In this way half a dozen barrels will be disposed of for one in ordinary years. Judging from the quantities arriving, your crop must be enormous. Fortunately, quality is also turning out good. There appear fewer spotted fruit, and slack barrels are turning out better than they usually do.

We are contemplating starting a Fruit Growers' Association on this side, to look after the interest of growers with respect to railway rates, salesmen's commissions, insect pests, etc. In fact, pretty much on the lines you have adopted in your quarter. The hints given in your "Association's Transactions" will help us to get under way.

Again thanking you for your kindness, I remain, yours faithfully,

R. SCOTT,
Carluke, Scotland.

The Dominion Journal of Horticulture.

SIR,—It is with pleasure that I peruse Mr. Roys letter in your December number, containing as it does the most feasible solution of a question that must be met and answered at an early day.

As a member of the committee appointed at Kingston for the purpose of suggesting some method for placing our present journal in the position that it should and must occupy, unless we are content to allow our more progressive American competitors to take the cream of our more advanced workers on all lines, I felt regret that this committee did not report in time for me to express a few frigid facts that could be better advanced during general discussion, than in a report or correspondence.

Not long ago I was asked to take stock in a new Canadian journal of horticulture, but declined doing so unless it was made national and issued weekly. The movement failed for the moment, but I was told that "we must learn to creep before we could walk." Now we do not want to learn to creep, as those who have not graduated from that stage of development, are still in the chrysalis form, or are buried in the cycles of the past, and if any wish to continue creeping, no surprise need be expressed when they are walked over by others.

Would any intelligent listener at the recent annual meeting claim for one moment that creeping was the proper position for those whose efforts on well directed lines lead th world? I do not think so.

As to the business end; there is no good reason why advertising space in such a journal, should not nearly pay for the cost of its publication.

Let us have the question fully ventilated, and at the proper time let a committee be appointed composed of members of the Provincial Societies, to arrange the detail, and carry it to a successful issue.

H. H. GROFF.

The Dominion Horticulturist.

SIR,—I notice in the December number of THE HORTICULTURIST, under the heading, "A Dominion Journal," the writer urges the making the magazine more thoroughly Canadian by the other provinces accepting it as their organ, and we should then have articles from different parts of the country, and thus making it larger and better, the increased cost being more than covered by the larger circulation. But in the latter part of the article the suggestion is made to issue it in a weekly form, which would, I think, be a great mistake, as it would contain a good deal of information that would soon grow old, and the expense of binding it would be increased, and its value when bound would be less. Hoping you will not adopt this change unless it is considered really necessary,

I remain, yours sincerely,

A. J. COLLINS.

Listowel.

The Honey Berry of Japan.

SIR,—I first received this as an unknown plant, collected by my collector in Japan, on an unknown island in the Yellow Sea. It grew rapidly from the first start, and proved that it required no petting. I was surprised at its rank luxuriant growth; the first season, I believe, it attained a height of about 16 feet, with canes nearly an inch thick; the next season the canes grew nearly 20 feet in length, almost straight up: the leaves on this plant are quite similar to the leaves on certain rose plants, except that they are several times larger than any rose leaves; the leaves being about 10 inches long on the old stalks or canes; the leaves are a brilliant, dark green; the under parts being covered with numerous purple thorns; the canes also are covered with tens of thousands of purple thorns, which glisten in the sunlight, and which gives the bush a singularly beautiful appearance. The fruit is a marvel; it is so glassy, and so brilliantly colored as to sparkle in the light; the color is reddish yellow; the fruit is quite large, of a strange, mystic flavor, which many people pronounce superb; again, others do not like the flavor. This plant is a raspberry; it commences to fruit with the earliest raspberries, and continues until Christmas. It is a greater yielder than any raspberry known at the present day; the fruit is valuable for any purpose that a raspberry is put to.

S. L. WATKINS,

Grizzly Flats, Cal.

Fruit is all Right.

SIR,—While it is early to suggest these reports, yet, there is reason why they should be recommended.

In brief, I would mention that the marketing of fruit requires the best of skill in handling. being properly gathered, and properly packed, which we know has something to do with the price of it. When we know what our markets want, then let us try and give them the desired article. It is safe to say, that carefully handled fruit, in properly put up and attractive packages, will yield double the profits of those unskilfully handled; therefore, to succeed, we must display skill and ability in our business; and would say it is not good business to put beautiful specimens on top of our package and then fill in with more inferior grade; we cannot afford to do this. Then the package. The fruit is worthy of being put up in the newest and cleanest package that is possible to obtain, and that each grower put his name and address on each and every package that he sends to market.

When one begins to grow fruit he will find (like the agricultural product) it is not all good enough to market, and therefore the greatest skill is required to handle our fruit, to realize the best returns. It does seem to me that we should try and improve upon last year's methods, if it is possible. Now if in shipping fruit in packages (especially to foreign markets), that a smaller package will carry better and in better condition on arrival than a larger one, why then let us adopt a smaller one, and, as many have suggested, they are in demand.

These facts are well known to many no doubt, and it is very important that experiments may be set on foot that will determine their goodness in this matter.

It is for this reason that I make these few assertions, that this continual striving and ambitious aim will lead to greater things, that we might not otherwise have undertaken. No matter what one undertakes, he must ultimately improve.

E. HERSEE, *Woodstock*

Gooseberry and Currant Growing.

DEAR SIR,—Lately I read two articles in the Toronto News, one by Mr. Spillet, on Gooseberry Culture, the other by the name of Stevens on "Small Fruit Culture." In Mr. Spillets' article he makes the assertion that gooseberry bushes cannot be grown from cuttings. Now I hold he is far astray as my experience for many years proves the reverse. As an example I will relate a circumstance which occurred in July last. Mr. Brooks of this town brought me two medium sized bushes, which were nearly dead, caused by the strawberry white grub eating the roots. After concluding they were beyond recovery I threw them on the ground where they lay

for two days wilting in the sun. A friend calling to see me, I showed him the state they were in, he suggested that I might give them a trial, which I did. I cut off the old wood along with the roots up to the first young branch leaving the leaves on, I planted them in a slanting position up to near the tips, I choose a spot for shelter the north side of a grapevine ; they soon began to show they had taken kindly to their new surroundings. I tried at intervals, by cutting the bark to see if my patients were progressing and can now say they are in perfect health. So this negatives Mr. Spillets' theory.

Although the Industry and Lancashire Lad can be grown from cuttings, it is too slow a progress for them, it is slow even with layering. Mr. Jocelin, a well-know nfruit-grower, writes, that he has never come across the man in America who can start the Industry, and says they have all to be started in England. If he takes in the method of layering and the less successful one by cuttings then the statement don't hold good in Canada. I may in the near future give a few points on starting G. B. cuttings. In the meantime I wish to make a few remarks on the article by C. L. Stevens, which I consider is misleading to the uninformed. His remarks on "Strawberry Culture" is the same as we read all the time, only he has not got out of the rut of growing the old Wilson and Cresent when others much better every way, are for sale. He states that it seldom pays to grow the second crop. Now although they are not so large as the first crop, still taking weight for weight the second outweighs the first ; then there is the labor of planting the second to be taken into account. He asserts that 80 per cent. of the plants after the first crop is over will be found dead. I think it will be hard to find fruit growers to endorse the statement. The same plant will grow year after year by simply setting it an inch below the crown.

The principal reason why so many in towns and villages give up growing this delicious fruit is that they are confined to a small plot of ground and cannot change their patch to new ground, no matter how much stable manure is used, as that won't contain all the mineral which has been extracted from the soil for a few years. One has only to consider the fine flavor and richness of this fruit to be convinced that it must have a heavy drain on the elements of the soil, if virgin soil was applied every two or three years along with wood ashes it would remedy the soil.

The writer in his remarks on raspberry says the Golden Queen requires protection in winter. It is quite hardy here in North Wellington. I hold a different opinion as to its fine quality, but "taste differs." I dug mine all out this fall for its being so badly affected with the grub which attacks it at the crown of the plant. Very few of my other varieties are affected by it. I may state here for the benefit of those who grow it that I tried an experiment with sulphur, lime and salt boiled, lime 30, sul. 20, salt 15, together taking a pint to a pailful of water, and sprinkling on the crowns about twice a week, it was effectual to at least 90 per cent. Mr. Stevens says the Dewberry is of high quality. This is new to me, for what I have tasted of them, I would prefer a turnip, but here again "taste differs."

On the subject of currants he prefers the Victoria to all others, because the others have a sprawling habit. Fay's Prolific is the only one among the red out of the many I know that has that habit. The White grape in the white class has also this habit. It is a heavy bearer and of good size, but of poor quality. I dug up all my Fays last fall, as I could fill their places with much better varieties that did not require so much space. It scarcely ever sends up a shoot, consequently there is only old wood to rely on, but a worse objection to it is that the fruit made into preserves is very *insipid*. As for his remarks on gooseberries, the growers of this palatable fruit will be behind the times by adopting his choice, which is the old Houghton, now very little grown on account of its small size and poor quality. If I had no better to grow I would give it up.

Now, Mr. Editor, my article is lengthy for you to find space in your valuable Journal, but my object is to put the inexperienced on ir guard.

It gave me much pleasure to read of the highly interesting meeting lately held at Kingston by the Fruit Growers' Association. Long may you go on in your way of well doing, so as the country will reap the benefit of your good work.

F. W. PORTER, *Mt. Forest.*

MR. S. SPILLETT'S REPLY.

Sir,—Upon the testimony of the teaching of the CANADIAN HORTICULTURIST for some time, upon the testimony of a large correspondence upon this subject with many of the leading gooseberry growers of Canada and the United States, and upon testimony of my own experience for fifteen years, I emphatically repeat my statement in "Daily News," that practically the gooseberry can't be propagated from cuttings. I would not say that if the soil were kept very damp, and the part of the cutting above ground were shielded entirely from the drying effects of sun and wind, that the cuttings would not catch. But layering is so certain and simple that it would not be worth the trouble. A gentleman of Mount Forest reported to me that he could not

get more than 10% in this country, but there was no trouble in getting them to root in England. So I admit that if cuttings were completely shaded, or very heavily mulched, a large per cent. might catch.

STANLEY SPILLETT.

Nantyr, Dec. 22nd, 1896.

Advertise in this Journal.

SIR,—I beg to convey to you the information that the Add which is inserted in your valuable journal by N. Otis, our Agent, at Boston, has proved to us of great advantage in furthering our business, and trust that your efforts in behalf of your journal will lead up to a bright and prosperous New Year.

Yours truly,
JOHN T. LOGAN.

The Markets.

Our Apple Markets.

The total number of barrels of apples landed in Liverpool this past season to date of December 5th was about 940,000 bbls., over four times the quantity landed in 1895, and yet in all cases where the fruit turned out really tip top, the price obtained has been just about as high as in other years. The great difficulty is to get even our finest winters over in anything like the condition in which they leave our orchards.

Woodall & Co. write under date Dec. 5th:

SIR,—Week's receipts are 74,685 barrels, which is not excessive, as compared with the weekly receipts during the season, but the total quantity received to date is immensely in excess of any previous year. From some cause which has previously been experienced, but never satisfactorily explained, arrivals from all shipping ports have landed in poor condition. This has tended to depress a market that could only have been sustained with excellent quality and condition, in the absence of which a very large proportion of the weekly arrivals have sold at low prices, and net results are consequently unsatisfactory. There is no important decline to quote on good sound stock, which was eagerly competed for, but the average returns to shippers through wasty condition must shew a reduction of 2/ to 3/ per barrel. At the approach of the holiday trade sound condition is of the first importance, and the failure in this is much to be regretted. If what are now afloat should land up to requirements, there should be an excellent demand at remunerative prices. Newtown Pippins continue in moderate supply, and there has been an active demand at very full rates, prices ranging from 16/ to 27/6 per barrel.

Quotations for Canadian apples for past week are as follows:—

Baldwins, 9/ to 12/9, 2nds, 7/6 to 8/6; Spy, 9/ to 11/6, 2nds, 7/9 to 8/6; Davis and C. Red, 10/ to 13/3; 2nds. 9/ to 9/6; King, 14/ to 17/; 2nds, 12/6 to 13/6; Russets, 10/ to 13/3, 2nds, 9/ to 9/6; Greenings, 9/6 to 13/6, 2nds, 8/ to 9/. Slacks sell 1/ to 2/ under these quotations.

LILIUM SPECIOSUM.

SINCE we intend sending all our Societies bulbs of this lily for general distribution in early spring, they will read the following directions for planting, from the Garden, with interest. In planting the bulbs they should be put far enough apart so that they will not need lifting in four to six years. They increase very fast. Some of the speciosum lilies here that were planted four years ago, three bulbs to a clump, have 30 to 35 strong flowering canes now, and are growing stronger every year. Lilies like plenty of water in their growing season, and this should be seen to. When you see the leaves at the bottom of the cane turning yellow, you may be sure the plants are dry at the roots. We always keep a mulching of old manure on them all summer, this helps to retain the moisture as well as to feed them. The mulching is put on in the fall, and left on, we do not take it off in the spring.

SOME OF PROF. HUTT'S CHRYSANTHEMUMS

THE
CANADIAN HORTICULTURIST.

VOL. XX. 1897. No. 2.

PROMINENT CANADIAN HORTICULTURISTS—XXVII

H. L. HUTT, B.S.A.

FIG. 1048.—PROF. H. L. HUTT.

INTIMATELY associated with the present interests of Ontario fruit growers, is Prof. Hutt, Horticulturist of Ontario Agricultural College, Guelph. Although a young man, and but a recent graduate of the College, he is working so systematically and upon such lines, as will in time enable him to serve the interests of the fruit grower in very many ways.

Born in the Niagara District, within sound of the Great Cataract, and brought up to practical work on his father's fruit farm, he early learned the business side of fruit growing. From earliest boyhood he was a horticulturist, for as a little child, he was making gardens and planting little trees—and the ardor of this child love was not dampened by the hard practical work of after years, for even yet his horticultural duties at the college are pursued with the same loving devotion that was evinced by him in the little "play garden," of his childhood. Such men usually succeed, because they take a real interest in their work.

In 1890, Mr. Hutt received his diploma for a full course at the O. A. C., together with a gold medal for general proficiency; and in 1891 he took his degree of Bachelor of the Science of Agriculture, at the University of Toronto. He then returned to his father's farm and spent a couple of years in putting into practice the lessons learned at college; and it is stated that within three years the cropping of the farm was nearly doubled owing solely to the adoption of improved methods learned at college.

In 1892, Mr. Hutt was selected as one of the speakers at the Farmer's Institutes, and has continued every year since; but we hope that in future the Department may send him to lecture to our Horticultural Societies instead.

In 1893, Mr. Hutt was appointed to his present position of Professor of Horticulture at the O. A. C.; but before entering upon his duties he took a special course at Cornell University, and visited the leading Horticultural establishments in the United States. By virtue of his position he is also a member of the Board of Control of our Fruit Experiment Stations, and official visitor to these stations every summer.

Our engraving (No. 1053) shows one of Prof. Hutt's classes in Horticulture engaged in practical work in Hybridization, and the accompanying cut of the College Garden (Fig. 1049) shows the field of some of Prof. Hutt's practical work. One special line in which he was engaged in 1896, was in testing strawberries, of which he had under cultivation about one hundred and twenty varieties. There were twelve feet of row for each variety and carefully labeled. These are shown more plainly in Fig. 1051, showing the Experimental Strawberry Plot in the college garden. It was the results of his work in this line that furnished the material for an excellent paper on "The

FIG. 1049.—THE COLLEGE GARDEN, 5½ ACRES.

The foreground represents the experiments now being made by Mr. Hutt, the College Horticulturist, in the cultivation of stawberries. In the distance are to be seen the dairy stables, the silo, the new dairy buildings, the experiment dairy buildings, and, in the extreme left, the residence of the manager of the Poultry Department, immediately behind which are the new poultry buildings.

Fig. 1050.—West Side Conservatory, at Ontario Agricultural College, Guelph.

FIG. 1051.—EXPERIMENTATION IN THE HORTICULTURAL DEPARTMENT.

The engraving represents part of a plot (a little over an acre in extent), in which 155 varieties of strawberries are in test, under Mr. H. L. Hutt, the Co le e Horticulturist. The photograph was taken in the latter part of June, about two months after the plants were planted. Each variety is plainly labelled upon a white wooden stake, as shown in the engraving. Mr. Hutt intends giving a full report of the yields made from 120 varieties that fruited this year in the next College report.

Strawberry," given at our meeting at Kingston. We are indebted to our worthy contemporary, "Farming," for the two engravings.

Another favorite line in his greenhouse work is the cultivation of the chrysanthemum. So attractive a display as that at the college is not seen short of Toronto, and the visitors are very numerous not only from Guelph but from the surrounding country. We give two views of the interior of this house in "mum" season, (Figs. 1050 and 1052) which give some idea of the excellence of the exhibit, and our frontispiece shows a few choice varieties.

In reply to an enquiry about the varieties in bloom, about Thanksgiving Day, 1896, the professor replied as follows :

We have 120 varieties of chrysanthemums now in bloom. The following are some of the choicest. I have not time to give full descriptions of each now : Enfant des deux mondes, feathered, white ; Ivory, dwarf white ; Pres. Smith, light pink ; Ivory, pink, curled quilled ; L B. Bard, pink, straight quilled ; Pitcher and Manda, cream with yellow centre ; Golden Gate, golden yellow ; Louis Boehmer, feathered, dark pink ; Rohallion, quilled, sulphur yellow ; O. P. Basset, very deep red ; Philadelphia, cream ; Tiger, bronze and old gold ; Judge Hoitt, anemone centred.

During the winter of 1897-8 we expect the Department of Agriculture will allow us to send Professor Hutt out as lecturer to our Horticultural Societies, and no doubt one of his subjects will be the "Cultivation of the Chrysanthemum." Perhaps his visits may stimulate each Society to attempt a Chrysanthemum show in 1898.

Fig. 1052.—View in College Conservatory.

LILIES IN POTS.

THE genus Lilium comprises about forty-five species of hardy, half-hardy, or greenhouse bulbs, and generally the prettiest and most effective bulbous plants that can be grown, either under glass or in the open air. The white lily (L. Candidum) is always to be seen in the wholesale market when in season. Only during the past summer we had the pleasure of seeing a splendid display coming on in a little orchard. The soil was undoubtedly rich and well drained. In this situation, we were informed, a gorgeous display of magnificent blooms are cut season after season. We mention this fact to show that with proper conditions L. Candidum may be readily raised to perfection. It is a very handsome and popular species. We do not purpose lengthily reviewing the numerous species of this genus. A word or two, however, on L. Speciosum in pots may not be out of place. Most lilies are especially suitable for pot culture on account of their pretty foliage, and suitability generally for greenhouse or conservatory decoration. When growth commences they may be plunged in the open ground, and allowed to remain there till the blooms are ready to expand, when they should be taken under cover. For general purposes the bulbs should be potted singly, in 6in. pots, so that they may be readily shifted when in bloom, if required. This is a good way to raise them for decorative purposes.

Potting Lilies.—The simplest process is as follows :—When the bulbs are received they are laid on an outside border, and just covered with some light or sandy soil. Then as the roots at the base commence to push freely they are potted. The best material is composed of loam, well-decayed manure and sand. The bulbs should be potted well down, so as to leave space at the top for additional soil as time goes on, that is when the root stems develop. After potting they should be placed on a bed of ashes, and be covered to a depth of three or four inches with the same material. When the tops are about to start through the soil the covering should be removed, when the pots may be plunged into the open ground to remain till the flowers are on the point of opening. It is important to remove the covering of ashes before the shoots make their appearance above ground, otherwise they will be blanched and will need protecting; whereas if exposed before the tops are above ground they will then push away sturdily from the very first, and, of course, resist the cold better. Under this system later blooms are obtained than if they were raised under glass, and consequently may be better appreciated by villa residents and suburban and amateur growers. In the summer they will simply need a little water, and as the pots get full a top dressing will be of great benefit to the plants. As the buds appear it is well to give manure water once a week. A stick for support is necessary. The flower is pure white, or more or less spotted with claret red. Large supplies come from Japan, and it is productive of fine, bold, handsome blooms.—*Fruit Grower.*

Fig. 1053.—Students Practicing Hibridization.

YARD DECORATION.

IN no way is the character of the occupants of a country home more truly judged by the passer by, than by the taste shown in the lawn and its surroundings. An attractive exterior is certainly important for the house, but not so important as a well laid out lawn. beauty of the place does not at all consist in the house, which is but a plain square building, but rather in the well kept lawn, the graceful curve of the carriage way, and the graceful trees and shrubs, which form a beautiful setting for the house itself.

FIG. 1054.—"SPRINGHURST."

We are glad to learn that many of our affiliated Horticultural Societies are giving especial attention to the cultivation of a taste in this direction both in public parks and private lawns, and truly it is time that our country began to make some steps in advance in this line of art.

In the accompanying illustration, for example, it is quite evident that the

Prof. Bailey, of Cornell University, has recently issued a valuable bulletin on "Planting Shrubbery" which we have read with much interest. He first condemns the nursery type of planting a door yard, as shown in Fig. 1055. How frequently one meets with this error. Instead of an open stretch of greensward, which is the beauty and ornament of a well-planned house yard, we

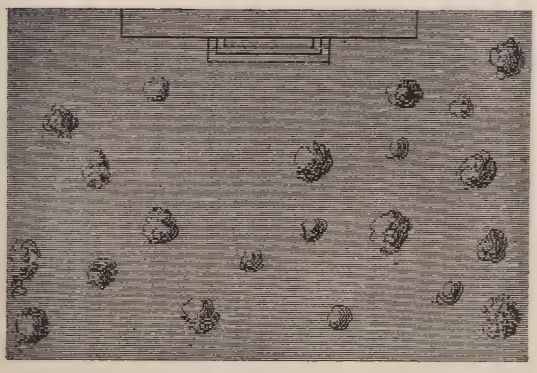


FIG. 1055.—THE COMMON OR NURSERY TYPE.

find more or less regular rows of shrubs or evergreens, dotting it over without the slightest purpose or aim in the way of making a beautiful whole. Prof. Bailey says that every yard should be a picture, and by way of contrast draws attention to Fig. 1056, "where the central idea is the residence with a warm open greensward in front of it. The same trees and bushes which were scattered haphazard in Fig. 1055, are massed into a frame work to give effectiveness to the picture of home and comfort."

To quote Mr. Bailey still farther: The making of a good and spacious lawn, is the very first practical consideration in a landscape garden. This provided, the gardener conceives what is the dominant and cenral feature in the place, and then throws the entire premises into subordination with thisfeature. In home grounds this central feature is the house. To scatter trees and bushes over the area defeats the fundamental purpose of the place,—the purpose to make every part of the grounds lead up to the home and to accentuate its home likeness. Keep the centre of the place open. Plant the borders. Avoid all disconnected, cheap, patchy, and curious effects.

It is not enough that the bushes be planted in masses. They must be kept in masses by letting them grow freely in a natural manner. The pruning knife is the most inveterate enemy of shrubbery.

. . . . . .

Flowers appear to the best advantage when seen against a back ground of foliage, and they are then, also, an integral part of the picture.

The flower garden, as such, should be at the rear or the side of a place, the same as all other strictly personal appurtenances are; but flowers and bright leaves may be freely scattered along the borders and near the foliage masses.

What kinds of shrubs and flowers shall I plant? This is wholly a secondary and largely personal consideration. Be sure that the main plantings are made up of hardy and vigorous species, and have lots of them. Then get the things which you like. I like bull-thistles, lilacs, hollyhocks, burdocks, rhubarb, dogwoods, spireas, elders and such careless things. But others have better

FIG. 1056.—THE PROPER OR PICTORIAL TYPE OF PLANTING.

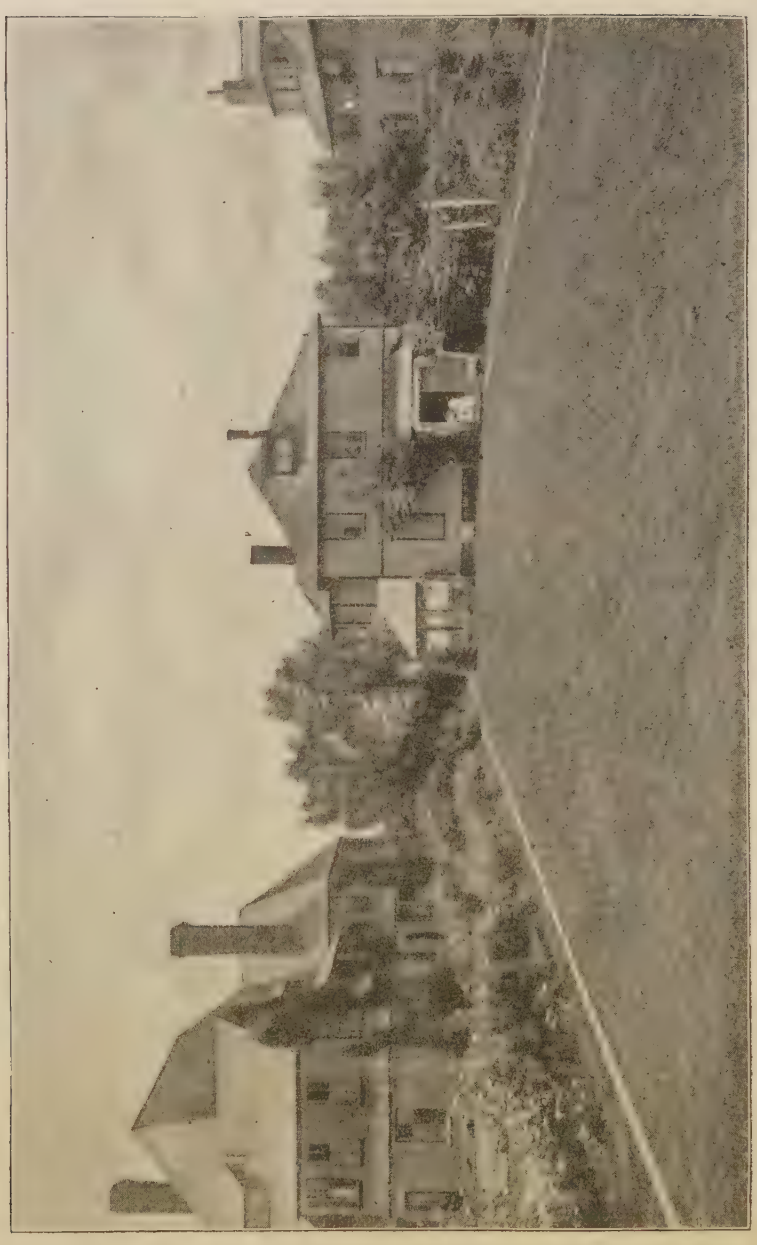


FIG. 1057.—BACK YARD WITH BORDER (LEFT) PLANTED AS WILD GARDEN.

tastes. There is endless merit in the choice of species, but the point I want to emphasize is that the arrangement or disposition of the plants is far more important than the kinds.

Wholly aside from any artistic value, a simple collection of common wild plants is always full of interest and merit. Fig. 1057 shows a plantation which answers the double purpose of a wild garden and a border mass-planting. The area is about three feet wide and ninety

feet long, and lies along one side of a small back yard. The soil was originally a most tough and obstinate clay.

. . . . . .

These various pictures will fix in the reader's mind the importance of a simple structural design for the home grounds. The essential elements of this design are the open centre and the well-planted sides. It is particularly important that the view to and from the front of the dwelling house be kept open, for otherwise there can be little conception of pictorial effect in the composition. It is a grave mistake to cover up or to obscure the one central and important feature of the place. This architectural composition would have little place or merit in the landscape if the foreground were promiscuously planted.

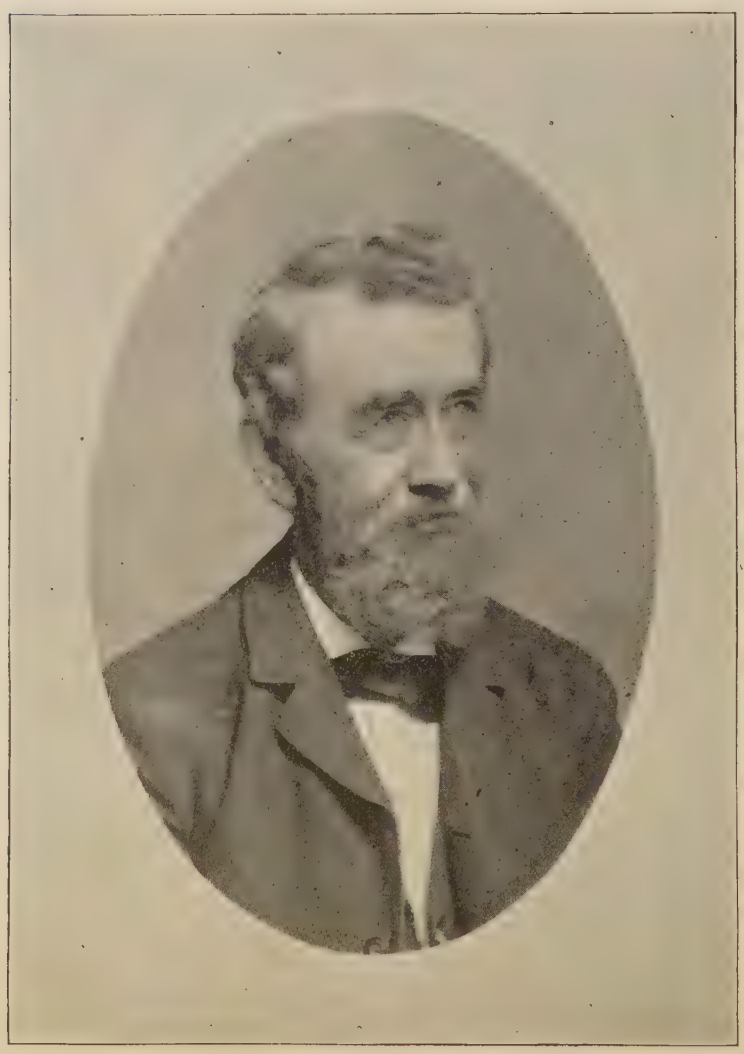
. . . . . .

But if one has no area which he can make into a lawn and upon which he can plant such verdurous masses, what then may he do? Even then there may be opportunity for a little neat and artistic planting. Even if one lives in a rented house, he may bring in a bush or an herb from the woods and paint a picture with it. Plant it in the corner by the steps, in front of the porch, at the corner of the house, almost anywhere except in the centre of the lawn. Make the ground rich, secure a strong root and plant it with care; then wait. The little clump will not only have a beauty and interest of its own, but will add immensely to the furniture of the yard. About its base one may plant stray bulbs of growing tulips or dainty snowdrops and lilies of the valley; and these may be followed with pansies and phlox and other simple folk. Very soon one finds himself deeply interested in these random and detached pictures, and almost before he is aware he finds that he has rounded off the corners of the house, made snug little arbors of wild grapes

FIG. 1058.—A CORNER AND DOORWAY DRAPED WITH HONEYSUCKLE.

and clematis, covered the rear fence and the outhouse with actinidia and bittersweet, and has thrown in dashes of color with hollyhocks, cannas and lilies and, has tied the foundations of the buildings to the greensward by low strands of vines or deft bits of planting. He soon comes to feel that flowers are most expressive of the best emotions when they are daintily dropped in here and there against a back-ground of foliage. Presently he rebels at the bold, harsh and impudent designs of some of the gardeners, and grows into a pure and subdued love of plant forms and verdure. He may still like the weeping and cut-leaved and party-colored trees of the horticulturist, but he sees that their best effects are to be had when they are planted sparingly, as flowers are, as borders or promontories of the structural masses.

It all amounts to this, that the best planting, like the best painting and the best music, is possibly only with the best and tenderest feeling and the closest living with nature. One's place grows to be a reflection of himself, changing as he changes, and expressing his life and sympathies to the last.



BY. CHAS. E. WOOLVERTON, OF GRIMSBY.

FIG. 1059.—C. E. WOOLVERTON, *from photograph by L. D. Oakley.*

Mr. C. E. Woolverton was born in Grimsby, in August, 1820. His father, Dennis Woolverton, who farmed about four hundred acres of land, was at one time M.P.P. for Lincoln County, and widely known among the early settlers of the Niagara District. Charles was from a boy accustomed to the occupations of the farm, as well as the orchard. Often he was sent to Hamilton with loads of peaches or apples, before there was any Grand Trunk Railroad, and so low was the price, that very often they would lie ungathered on the ground.

He was given a college education, after which he decided to settle upon the farm. In company with Mr. A. M. Smith, he engaged for many years in the nursery business at Grimsby, planting also a large acreage of peach, apple and cherry trees of many varieties. Mr. Woolverton was one of three constituent members of our Association, still living; the other two being A. M. Smith and D. W. Beadle; and on this account he was especially invited to write this paper. He is now about 77 years of age, a constant reader, and a frequent contributor to the public press.

IN the time of the Revolution, some sterling men, called U. E. Loyalists, settled in the Niagara District. King George gave them land in the wilds of Canada where nuts, plums and crab apples grew. They had read that one of the finest trees in Rhode Island sprang from a seed dropped in the grave of Roger Williams, so many tried the experiment of sowing apple seeds, but few apples of any size were produced, and the small ones were often gathered with the wooden scoop. About 1790 John Smith offered his right to 200 acres for a cow, but found no buyer ; but about 1798 he sold it for 40 pounds of York currency ; my grandfather and the said Smith gave five natural apple trees to bind the bargain. About the year 1830 there came a man from England about 50 years of age and weighing about 14 stone, and he called himself Peasley, the grafter. He carried with him scions which he declared would bear pound apples, full sixteen ounces to the pound. When at work, he took his stand on a wooden chair, clothed in a huge jacket with pockets like the pouches of the kangaroo, in one of which he carried wax and scions and in the other grafting tools. After grafting in our neighborhood, he returned to the Mother Country, and after six or seven years came out again. I remember his joy when he found his word true and saw the pound apple which he said was the Gloria Mundi. I thought of old Santa Claus with his gray whiskers and loud laugh, and "his little round belly that shook when he laughed, like a bowl full of jelly." He hailed from England, but his port and bearing were of the German order. He came out in the reign of George III, and when he swore, it was "Py George," the then popular oath of the U. E. Loyalists ; for the king gave them their farms, their government and their church, and that they might not fracture the third commandment, allowed them to swear by his name. He brought the Ribston Pippin, Pearmain, and English Russet. When Peasley's Pearmin, Ribston and Gloria Mundi began to bear, I took a load to Hamilton and supplied that village where Carey kept the hotel and Stinson the principal store.

Dr. Beadle was selling trees from St. Catharines, and one Moore, a Canadian, brought a few pears and peaches from Rochester. Delos Beadle had graduated from the Grantham Academy and, I think, was studying law at Harvard. He afterwards took up his father's calling, and at his instigation the fruit growers met in the Chief Magistrate's room in the Court House at St. Catharines.

About 1857 A. M. Smith appeared on the scene. He had learned the nursery business with Mr. E. Moody, of Lockport. Mr. Moody came over for Canadian evergreen trees, he stopped at Grimsby to give us some advice about raising peaches. He praised our soil and said he had only one objection to living in Canada, and that was that he could never be president of the United States.

When our Association met at St. Catharines, we were twice surprised. First, at the knowledge of Judge Campbell and Delos Beadle about fruit, climate and soil ; and secondly, at our own ignorance of the fruit we had handled for a term of years. The genesis of our Association budded in St. Catharines. Judge Campbell was the first life-member, but did not live to see it bloom. Delos Beadle was the Moses of our exodus, leading us out of ignorance into the present fruit bearing stage.

The formal organization of our Association elected W. H. Mills, of Hamilton, as President, He was not of the mills of which it takes ten to make one

cent, nor was he a wind mill to crack corn, but he honored the goddess Pomona by cultivating fruit and flowers, and at one of our meetings he took us out to see how faithfully he raised the finest plums and pears by the sweat of his brow.

Charles Arnold had rather a set countenance and appeared somewhat cross, and he believed in cross fertilization of fruit and grain, but his crossness was something like the chestnut burr, only on the outside, for we never had a more welcome visit than at his residence when he invited the Association to Paris.

A. M. Smith and the writer were honored with a like visit at Grimsby, when we followed suit and invited the Association to our hearts and homes. I cannot forget the two who brought their wives to add to the sociability of the occasion. Mr. Holton and Mr. Haskins, of Hamilton. It seemed at once to put a link in the chain of friendship which death alone could sever, and that only for a time.

In conclusion, I may say, that I have had the honor of being a full private member of this Association all these years, and have seen with pleasure its rise and progress to its present character, and the assistance it received from such noble men as Rev. Mr. Burnett, Wm. Saunders, Judge Logie, P. C. Dempsey and others. And I wonder why I, who have done so little to advance the work, should still live at nearly four score, while those useful men, younger than I, have been called away. But we bless their names for their works which follow them, and we hope to meet

> "On the other side of Jordan
> In the sweet fields of Eden,
> Where the tree of life is blooming,"

where the eternal tree of life bears everlasting fruit, instead of temporary trees bearing perishable fruit only once a year.

CLIMBING VINES.

CLIMBING vines have many different methods of attaching themselves to their support—some encircle a branch of the host by twining their main bodies around the support. A hop vine is a familiar illustration of this. More delicate ones cannot twist around their stakes, but need to have string or some similar material to cling to. The ordinary morning glory is an illustration of this class; but there are some which simply climb by twisting the leaf stalk around the support. This is especially true of the different kinds f clematises, yet it is not unusual in some gardens to see stakes as thick as walking canes put for the clematis to run up on; but as it is unable to do this they have to be tied to this pole by twine, while the leaves go on twisting themselves in order to find something to cling to, and as a consequence, the vital powers of the plant are exhausted. In many cases the clematis, especially the variety known as Jackmani, will die completely and suddenly from the attack of a minute fungus; but it is more likely that this occurs oftener in cases as described for want of the proper means of support. Thread or twine for the leaves to twist around, or even a little brush wood, such as we would give to a crop of peas, is much more likely to produce healthy and vigorous clematises than when they are deprived of all means of using their leafstalks as tendrils.—Meehan's Mon'ly.

CHRYSANTHEMUM CULTURE,

AS PRACTICED BY AN AMATEUR.

FIG. 1060*

PHILADELPHIA, MRS. H. CANNEL, JUDGE HOITT, GLADYS, SPALDING, MRS. GEO. GLENRY, ENFANT DES DEUX MONDES, IVRA, LOUIS BOEHMER, JOEY HILL.

THE chrysanthemum will live and do something almost without care, but perhaps no other plant will better appreciate proper conditions and attention, and repay more for them than it will; and even in our short, dry seasons the amateur can, with a reasonable amount of care, reap a rich reward in its cultivation.

My own experience is not very extensive, but I will try to tell, as briefly as possible, what I have learned about their culture.

In the fall or winter, when the old plants are through blossoming, they may be stood in a light cellar or anywhere out of the way where they will not freeze and will have some air and light until

*This engraving is from a photograph of chrysanthemums at the O. A. C., forwarded by Prof. H. L. Hutt.

February or March, then bring them to a sunny window for a few days, and you will have plenty of shoots sufficiently hardened for slips, or the young plants may be taken up with some root. This latter plan I prefer, as they are less trouble to get started. They should be when turned out, they should be shifted to four or five inch pots.

Sometime from the middle of May to the first of June they may be transferred to the open ground. In the selection of a suitable place for them in the garden it should be remembered that the

FIG. 1061.—CHRYSANTHEMUMS AS WINDOW PLANTS (FROM GARDENING).

placed in quite small pots with good drainage, and be kept in a healthy condition, but not pushed.

As soon as these small pots begin to fill with roots so they are seen upon the bottom and sides of the ball of earth, chrysanthemum is a sun loving plant and must have a good exposure to the sun for at least six or eight hours every day that the sun shines. And yet, if possible, they should be protected from strong winds. The plants should be set

about eighteen or twenty inches apart. The ground should be very loose and rich, should be made level so the water will not run off, and before the dry weather sets in be carefully mulched. The plants should be pinched back when about six inches high, and again when the new branches are three or four inches long.

This twice pinching will probably keep the plants sufficiently bushy, but an occasional other pinching may be necessary to keep them in proper shape.

They will need stakes almost or quite as soon as planted out, not so much to prevent breaking as to prevent being switched about by the wind. They must be carefully watched for either the black or green aphis ; the aphis may be extermined or kept at bay, either by hand picking and the careful use of a proper brush, of by the use of either tobacco water or kerosene emulsion.

If specimen flowers are desired pick off all the buds as they appear except the terminal, or the best one for each branch. You may thus have ten to twenty or more splendid specimen flowers to each plant. But if you prefer to leave all the buds you may have very showy plants, though the flowers will be smaller and less perfect.

Before severe frosts they should be lifted and placed in ten or twelve inch pots or boxes. Water well and place in the shade for a few days. Be careful that the change from out door to indoor life is not too sudden. Unless good health be preserved they are liable to be attacked by insects or by mold. Manure water may be used two or three times a week, whenever the plants are in a thrifty growing condition, but not otherwise. Instead of setting your plants out in the open ground in the latter part of May, it is equally as well, and perhaps better, to retain them in pots and plunge for the summer.

Repot in good rich soil, using this time, six or seven inch pots. Dig a a trench deep enough for plunging them, and fill the bottom with coal ashes to keep angle worms out, then set the pots upon this, about eighteen inches apart, and fill the trench about them to the rims. In selecting a place for these pots remember sunshine and shelter as when planting out in open ground.

Pots plunged in this way need careful watching lest they get too dry.

Examine early in July and if the pots are nearly filled with roots take them up and transfer to eight or ten-inch pots and plunge as before. Perhaps by early in August they will be nearly filled with roots again, but now it will be better not to repot again, but instead furnish plenty of manure water or other stimulants, They will require the same attention in regard to pinching, disbudding, etc., as if in the open ground. By thus growing them continuously in pots we do not get quite so much foliage, but we avoid the shock of taking up and potting in the fall. And I think we have more and perhaps better flowers.

Besides these two methods of growing the chrysanthemum there are three others that perhaps deserve to be mentioned. The first is to simply retain the old plants or roots and grow them in large tubs or boxes from year to year. Numerous stems and a great show of imperfectly developed flowers are thus obtained.

The second plan is to divide and plant parts of the old bunch of roots. This is similar to the first, but better, as the stems are less crowded and the flowers somewhat more perfect.

The third method consists in selecting shapely branches near the ground and laying them some time in August or early in September. When rooted they are separated from the parent plant

and put into three or four-inch pots, in which they are bloomed. Usually not more than from one to three flowers are allowed a single plant. By this method very good flowers are obtained. They are convenient to handle and make a very pretty display.

Chrysanthemums are very easily raised from seed, but extra good kinds are thus only rarely obtained. So the amateur, who wants only a few good plants, can hardly afford to rely upon seedlings.

For the past two years leading florists have been making great efforts to obtain good varieties that flower early. As a result we may now have very good chrysanthemum flowers during the month of October, and a few as early as September.—Gardening.

THE AMATEUR'S ROSE GARDEN.

WE find mention of the rose in the earliest writings, both sacred and profane. It was undoubtedly very generally esteemed and used for ornamentation on both public and private occasions. As an instance, it may be mentioned that the Romans put it to a very significant use at some of their private dinners and feasts. A rose was placed over the principal door and he who passed under it silently bound himself not to reveal anything that was said or done within. Hence arose the saying, "Sub Rosa." The limits of this paper will not allow me to give an history of the rose, but of the way to cultivate it.

There have been so many papers read on the rose, and so many good books printed, that it is hard to say anything new, but, as most of the books written and papers read have been English and suitable to an English climate, therefore, they would not do for this climate, and are a little confusing to the amateur. This paper is for this locality, further south you can start earlier, and further north a little later. The first requisite in the culture of the rose is the preparation of a suitable place for planting them. The best position is none too good for them. What I consider the best is facing the east, with protection on the north and west. I do not mean protected by large trees, but by fences or hedges. The rose likes to have a fairly open exposure with a free circulation of air about it, but, when I say that, I do not mean such a circulation as would drive a forty-horse power windmill. In connection with the choice of location, we must see that the roses are provided with a proper soil. They will do well in any good garden soil free from standing water. The soil must, of course, at first be thoroughly manured, as the rose is a gross feeder.

Roses that have been grown out of pots should, if possible, be planted while in a dormant condition in the spring, as it is almost impossible to lift a rose while the sap is running, and at the same time have it make a good rose. Roses that are pot-grown can be planted any time in this latitude, from 10th of May to the 10th of October, but, if set out in midsummer, a little extra care will be needed in watering them. Respecting the size of plants that should be set out, I advise those who can obtain them to put out plants of two years' growth. Do not put out bantlings. If

you do not know what bantlings are, they are plants sent out by mail, 20 for $1.00. Of course you get a beautiful catalogue with them and a colored plate of roses. Look well at the picture, as it is about all the roses you will see from plants sent out by mail. If you have a greenhouse to nurse them in for a season, you may succed with them, but one honest two year old pot grown rose is worth fifty of the baby roses that are sent out by mail.

In planting the bed, if of more than one variety, the strongest plants should go in the centre of the bed and the weakers ones at the outside.

The pruning of roses is one of the most important features connected with their culture. All roses that come from the open ground should be pruned immediately after planting, as the shock of transplanting must be met by a shortening of both shoots and roots. The shoots being shortened, the number of buds to draw upon the sap is reduced and a more vigorous growth follows. Pot grown roses will not require pruning the first year they are planted, as there is no disturbance of the roots in planting them. Plants of delicate habit should have severe pruning, Do not prune till the spring, as you can better see then the damage that has been done by frost. Besides pruning the plants in early spring, a summer pruning in the middle of July is helpful in order to induce the formation of flower buds later in the season.

Just here, it would be well to say a few words about planting the rose. I will not take up your time by telling you all the ways it is done by amateurs, but I will tell you the right way. The heaped up mound of soil that would make a pretty bed of geraniums is not the style of bed for roses. You may elevate your bed above the level if you like, but it should be as nearly flat as possible on top and moderately firm. Make an excavation with a trowel, or anything suitable, one inch deep and two inches wider than the ball of the plant you are going to plant, place the plant in the centre of the excavation, press the soil around the ball of roots and fill up level to the surface. Be sure you plant them firmly, as more plants are lost by loose planting than by insects. The distance to plant is about two feet apart. If planting them in a low border, I would plant them 18 inches apart in the rows, and three feet between the rows. This, with a good watering, will complete the operation of planting. If you syringe well every fine bright day, you will find in ordinary weather that it will keep the soil moist enough.

About the first of June, after the roses have broken freely is the time to put on a mulch of rotted manure. The plants will also be benefited by digging in the manure after the summer crop of roses is over and applying another mulch on top, cutting all weak growth out and shortening back the flowering shoots. If you follow this up, you will be gladdened by very fine roses in September and October. Manure, if new, should never be applied to come in contact with the roots, but should be spread on the surface of the earth as a mulch. All animal manures are useful for roses. Horse manure mulch is better for heavy soil than for light soil. Well rotted, cow manure, is best for light sandy or light black soils, but do not use it for any soils that are inclined to be wet and sticky. Before you can grow roses in a wet or stocky soil, it might be underdrained. There are also other good fertilizers for the rose, such as root, spent-hops, flower of bone and bone meal, also a dressing of lime when you dig in the winter mulch in the spring and another dressing before

you put the winter mulch on in the fall. Wood ashes are also an excellent fertilizer for the rose. During the formation of the flower buds, which will be about the first of June, an application of liquid cow manure, will help to swell the buds and give texture to the flowers, but do not use any after the flower buds begin to show color.

O. G. JOHNSTON,
Florist.

Kingston.

SEASONABLE WORK.

THIS is an excellent season to do a little propagating, so as to have nice plants for bedding out. Geraniums, which may be growing tall and straggling, will yield cuttings which may be potted firmly into soil in two-inch pots; they will do quite as well as though put into sand. While they need warmth and protection from draft when rooting, the air of the room in which they are kept must be pure and free from the fumes of gas or coal oil. The escape of illuminating gas is always very destructive to plants, especially when in bloom; the usual result is immediate dropping of the buds, followed, in the case of such subjects as begonias, by dropping of the leaves also.

Ageratums may also be propagated now, as they will soon begin to grow straggly, and when the cuttings are rooted, the old plants may be thrown away. We find them very satisfactory as a window plant, providing plenty of bloom. They should be carefully looked over for traces of mealy bug; if any of the tiny white cottony dots are observed, rub them carefully off with a soft pointed stick. These bugs are a great nuisance on soft-wooded plants. If some old coleus have been carried over from last summer, propagate them from the young shoots; the old plants, which are usually dull in color when cold weather sets in, will be getting very angular and stalky, as they so often drop their leaves when in a low temperature. They should, however, have plenty of "breaks" or young shoots for propagating. Ivy geraniums will now be throwing out long shoots, and they will be all the better for stopping; the top shoot should be pinched off, to produce a more stocky growth, and this severed shoot may be planted in a small pot, thus increasing the stock. Ivy geraniums have been wonderfully improved of late years, and there is no reason to grow the old-fashioned type with small single blooms, when we can get the fine new varieties, such as Souvenir de Charles Turner. Their luxuriant foliage and trailing habit render Ivy geraniums indispensable where basket plants are required.—R. N. Y.

LILIUM SPECIOSUM ROSEUM, the lily to be sent to members of our Horticultural Society by the Ontario Association is a grand lily, and succeeds well here and is certain to bloom if protected in winter by a heavy coating of manure. They also increase rapidly. C. L. Allen in his book on Bulbs says: "As a whole this species of lilies (Speciosum) far surpasses any other species of herbaceous plants for the garden or for the green house. Among the lilies there are none to compare excepting 'L. Candidum' which has no peer," and Paxton describing this variety "Roseum," says: "In the exquisite loveliness of its flowers, their superior size, and the stronger and more robust habits of the plant, this charming variety almost outvies the splendid species (Speciosum). The dazzling brilliancy of hue for which the species just mentioned is so deservedly admired alone as to maintain its ascendancy, for in every other respect it is decidedly unequalled."—JAS. LOCKIE, Waterloo.

The Orchard and Fruit Garden.

CURRANTS—HOW TO GROW THEM.

OF all fruits that can be grown in this country the currant gives the greatest return for the labor expended. No matter how poor the soil, or how careless the cultivation, you can expect a crop of currants. Though the difference between a box of currants such as is generally offered for sale, and a box of, say, "Moore's Ruby," such as I have grown, every bunch with 20 to 24 berries on it, is very great, and the difference in quality is even greater.

There is no fruit that responds so readily to good feeding and careful cultivation.

The best soil is a good sandy loam, which should be deeply spaded and well manured before planting, as the roots grow very close to the surface, and should be interfered with as little as possible after planting.

All varieties grow freely from cuttings of the present year's growth, which do best planted in August, though very well any time before frost, or in the following spring.

Make cuttings about 6 in. long, plant in rows a foot apart, inclining the cuttings at an angle of 45°, so that the lower end won't be too far below the surface, leaving one end above ground; mulch with light manure or sawdust, to keep the earth moist, and by the end of the following summer 90 per cent. of them will be good strong plants, ready to be set out in their permanent quarters. Give them plenty of room, about 6 feet each way is little enough. After planting mulch with well-rotted manure. Of course a year can be saved by buying your plants from a nurseryman, and they are sold so low now, that when only a few are wanted for home use, it is the better way.

All the cultivation that is necessary the first year is to keep down weeds and pinch out the tip of any shoot that is growing too fast for the rest.

The second year there will be a few bunches of fruit, the third year enough to pay expenses, and a full crop every year after for ten or twelve years, when it is better to start a new plantation, as the finest fruit is got from bushes three to six or seven years old.

Pruning after the second year consists in cutting out all surplus canes from the centre of the bush, and all that tend to lie on or close to the ground. The best season is in August, after the fruit is off and wood growth has ceased.

If you want to grow the largest berries possible, in June, when the new wood is about 6 inches long pinch out the ends of every shoot, by so doing you check wood growth, and throw the energies of the plant into the fruit, and also very much reduce the amount of pruning necessary in August.

Good feeding requires a mulch of

three or four inches of stable manure every fall, two to three feet on each side of the row, which should be supplemented by a dressing of bonedust, and a good potash fertilizer at the rate of 1½ lbs. of the mixture to each bush in the spring; the winter mulch may be forked on *very lightly* in the spring, or may, if not objected to on the ground of untidiness, be left on all summer. The less the earth is disturbed within three feet of the stem, the better, as the roots being near the surface a great deal of mischief is done by deep cultivation, even with a digging fork. A spade should never be used near currants. If the soil is very light a mulch of straw or marsh hay is very useful in conserving moisture in a dry season, but if water is available and the rake is industriously used to keep the surface friable, a mulch is not necessary.

The great enemy of the red and white currant is the "Currant Worm," which works such havoc in May, if not checked, destroying in a few days every leaf on the bush; and with the leaves goes the crop for that season. The first brood is hatched out in this locality about the 20th to 24th of May. As soon as they begin eating the leaves, apply Paris green; one teaspoonful to a wooden pail of water, with a whisk, or, better, a spray pump, being careful to get it well into the centre of the bush when the worms begin their work. One application as a rule, is enough for the season, but some years a second brood appears as the fruit ripens; it is not safe to use Paris green then, but a good substitute is White Hellebore, about 1 oz. to a wood pail of water, applied in the same way as the Paris green.

The only other enemy of the currant worth considering, is the currant stem borer. The parent insect lays her eggs near the buds; when hatched the larva eats into the centre of the stem travelling up and down, living upon the pith, their presence may be detected by the sickly look of the leaves and small size of the fruit. The only remedy is to cut out the affected canes and burn them.

In black currants, Lee's prolific is a good variety, much superior in size and flavor to Black Naples or Black English. Champion, and Prince of Wales are said to be good kinds, but I have not fruited them yet. The Cromwell, so industriously puffed by some nurserymen, is nothing but the old Ribes Auseum or Golden Currant of old gardens, a very pretty flowering shrub, but as a fruit it is utterly worthless; the crop is so small as not to be worth picking, and the quality so poor that I have never met anyone that would eat a second one.

In white, by far the most extensively grown is "White Grape," long considered the finest flavored of all currants; unfortunately, it is rather small in size, and has a bad habit of dropping the end berries of the bunch. Last summer I fruited for the first time, "White Gondoin," and was very much pleased with it; though rather more acid than White Grape, it is so much larger in bunch and berry, that it will prove a formidable rival to that old favorite.

Among the reds, "Moore's Ruby" is decidedly the best variety I know of. An upright, strong grower; bunch long, frequently 22 to 24 berries in the raceme, berry large, a prolific bearer, and quality the very best, sweeter and finer flavored even than White Grape. I have grown it for ten years and have yet to find a fault in it.

An excellent variety is "Wilder Red," not so sweet as "Moore's Ruby;" not very desirable, as large in bunch and berry as "Fay," and a much stronger grower. The weak growth of the "Fay" is its greatest defect; one of the largest

berries, good bunch, good quality, and a heavy bearer, but it is such a straggley grower, and so prone to split in the forks when loaded with fruit, that it will always be a short-lived bush.

A new variety, much advertized, "North Star," does not justify the claims made for it. Though a strong grower, and apparently growing to be a heavy cropper, neither in size or quality is it the equal of any of those mentioned above.

"Raby Castle" and "Victoria" are two old sorts that if not the same, are so nearly alike, that there is no use growing both of them; heavy bearers, but only medium in size and quality.

The "Cherry," though a large, showy berry, is too shy a bearer to be a good market variety, and too acid to be suitable for home use.

"London Red," though a very heavy bearer, one of the heaviest with me, is too small and too acid to be desirable.

"Red Dutch," though better in quality, is too small to be profitable.

R. B. WHYTE.

Ottawa.

SMALL-FRUIT CULTURE FOR MARKET.

IT is the purpose of this paper to present in compact form the general principles upon which the successful culture of small fruits is founded. It is designed for beginners rather than for experienced growers, and is therefore largely devoted to points which the man without experience is likely to ignore, or at best to regard with insufficient attention. Some of the methods suggested may need modification to meet the needs of the individual grower, but it is believed that such changes as may be necessary will suggest themselves to the thinking cultivator who carefully considers his particular location and surroundings.

The growing of small fruits requires a comparatively large investment of capital per acre and also a better soil than is necessary for the production of most of the tree fruits. It is therefore better suited to the small farm, under the direct supervision of the owner, than to the large estate, whose proprietor cultivates by proxy. To balance the comparatively large capital required we have the fact that, aside from the value of the land and permanent improvements, the chief outlay is for labor, which may be done by the grower and his immediate family, while the returns are much quicker than from the tree fruits or the grape. In a few sections, so situated that large markets, either near or remote, are accessible, the culture of one or another of the small fruits may be profitably undertaken on a large scale, but these instances only serve to emphasize the fact that small fruit culture is primarily a homestead pursuit. The narrow bed or garden border of fifty years ago, enriched, dug, and weeded by hand, has developed into the field, fertilized, plowed, and cultivated by horse-power, yet the requirements of the various species remain much the same, the methods of accomplishing the desired results alone differing. As practised by advanced growers in North America, the methods followed in the culture of small fruits are peculiarly of American development; while with the exception of the currant, the varieties extensively grown are of American origin.

The fruits to be considered are the strawberry, blackberry, raspberry, currant, and gooseberry.

CHOICE OF LOCATION.

No small-fruit plantation is likely to be profitable if located far from a market or convenient shipping point. In selecting a location special attention should be paid to the character of the roads, if the fruit must be hauled by waggon for any considerable distance. If railroad or steamboat transportation is to be depended on, the efficiency and enterprise of existing lines should be investigated, as the character of their service will be of great importance when fruit shipments begin.

In any given locality the most important consideration should be the selection of a site reasonably safe from killing frosts in spring. Away from the influence of bodies of water such sites are usually found on small plateaus or gentle slopes terminating in abrupt ravines or valleys where prompt and thorough cold-air drainage exists. Flat land, remote from open water and unbroken by ravines or hills, should always be regarded with suspicion, particularly if underlaid by a cold and badly drained subsoil. Bottom lands, in which admirable soil for small fruits is often found, are usually too uncertain in their fruit production, owing to frequent frost injury.

The soil requirements of the different species vary considerably, but all thrive in a moderately deep loamy soil that holds moisture well at all times without becoming soggy during protracted rainfall.

The exposure to be sought varies with the latitude, the climate, and the aim of the grower. If earliness is requisite to secure profitable prices, and the locality one in which late frosts are infrequent, a southern slope is preferable; if, on the other hand, a uniform and regular demand exists, regardless of a few days' difference in time of ripening, a gentle northern or north-eastern exposure should be selected. In most localities, however, the matter of slope is of much less importance than that of comparative elevation of the site. It should be higher than the adjacent land without being bleak, and should furnish a soil of at least fair fertility.

PREPARATION OF SOIL.

The selection of the proper preparatory crop is a matter of much importance. In general some hoed crop should precede the planting of any of the small fruits. With the strawberry at least two years of cultivation should intervene between well-established sod and the planting of berries, in sections where the white grub abounds. Corn or potatoes, well manured and kept free from weeds throughout the season by thorough cultivation, are good preparatory crops. In trucking regions almost any of the annual vegetables will do to precede small fruits. The objects to be attained are (1) to free the ground from seeds of annual weeds, (2) to eradicate established perennials of every sort, including grasses; (3) to get rid of noxious insect larvæ, and (4) to leave the soil in that lively and mellow condition which the grower characterizes as "good tilth." If any portion of the field remains wet long after rains during any portion of the year, it should be drained before planting. In most soils and locations tile underdrains are preferable, though boards, poles, or stones are sometimes used to good advantage. If all of these are impracticable, land naturally wet can sometimes be made to yield fairly good crops by planting on ridges thrown up with the plow and depending upon open ditches to remove surface water.

Stumps, loose roots, and stones large enough to interfere with the cultivator

should all be removed before the final plowing. The grower should bear in mind that thorough preparation of the soil will materially increase the probability of securing a good stand of plants, on the one hand, while it greatly decreases the amount of hand work necessary in hoeing and weeding, on the other. This is particularly true on new ground and on all soils of a clayey or tenacious character.

The preparatory plowing should be as carefully done as for a garden crop, and in most soils it should be as deep as possible without turning up much of the subsoil. Surface soils less than 8 inches deep should be plowed to their full depth. Where a compact or retentive subsoil is found, its stirring with a subsoiler will benefit the crop in most regions by affording prompter drainage and promoting deeper root growth.

(*To be continued*)

ONION CULTIVATION.

THE next vegetable in importance to the potato for practical utility is certainly the onion. In most European and Asiatic countries in its different forms, such as leeks, shives, garlic, etc., it is probably more used than the potato itself; this latter vegetable to some extent being superseded by bread, rice or macarony.

It is believed the onion in Ontario does not receive the attention it deserves. Our climate and soil both appear to be well adapted to its cultivation, whilst the prices obtained are fairly remunerative. Why then is its growth and use so much neglected? Perhaps it is from the simple reason that sufficient information as to its culture is not obtainable, and yet there is little difficulty with proper care in producing first-class bulbs. The three best varieties to cultivate are the Red Wethersfield, Yellow Danvers, and the new foreign or Spanish onion. This latter is globe shaped, and not infrequently, when well grown on a suitable soil, individual specimens will tip the scale at sixteen ounces. The best soil for onions is well drained bottom and, that is black earth from which a ldense cedar bush has been removed. In this alluvial deposit, made originally from the washing in past centuries of leaf mould from the surrounding high ground, as well as from the decaying vegetation produced by a thick growth upon the land itself. It must not be supposed because this land is black that it is also rich, as this is by no means always the case, but it holds manure well, and is just lovely to work. A good coating of two or three inches of well rotted manure plowed under lightly in the autumn, and in the spring a drill run with the plow where the onion rows are to be placed, and a second dose of fine compost, such as road sweepings from a block pavement or a similar application to that given previously in the fall, will, when covered by the rake with fine earth, make a suitable seed bed for the crop. This black soil is by no means insisted upon as a nice sandy loam would be found equally efficient, but the muck soil is generally quite level, so that it is free from being washed by heavy rains, and if it is thoroughly cleaned from stumps and roots, it has no gravel or boulders to obstruct the plow, seeder or hoe. The earth also is so fine that the seed sprouts easily and regularly along the row. If the cultivator has not the convenience of a seeder

(drill), he will find the readiest and evenest way to sow the seed will be to stretch a line and mark the ground with the end of a rake or corner of the hoe; if the row is a long one, the line should be fastened to stakes, say every fifty feet, so as to insure its being perfectly straight from end to end. This will assist materially when the weeding process is commenced.

There are three methods of growing the large seed onions. First, from seed direct; second, from "sets"; and third, from plants previously started in a hot-bed.

If the first plan is adopted, the seed must be sown so soon as the frost is out of the ground in the spring, the earlier the better, if good results are expected. One ounce of seed will sow about one hundred feet of a drill; it will take from four to five pounds to sow an acre with drills from fifteen to eighteen inches apart. If the cultivator has no seed drill, his best plan is to secure a small tin can an inch and a half or two inches in diameter, say three or four inches deep; a small mustard can is as good as any. Make five or six holes in the bottom of this with an awl of sufficient size to admit the seed to come out when the box is shaken. If the awl is tapered from the point to where it enters the handle, the proper sized holes may easily be obtained. The seeder may be tested as to its proper capacity to deliver the seed by shaking it over a board or piece of paper, on which the result can be noted. A four foot lath should be split flatways at one end, the edge of the tin cup inserted and a tack driven through the lath and tin to keep it firmly in place. It should perhaps be stated that the holes should be pierced from the inside of the tin cup, as this will insure more regular seeding. Armed with this seeder a drill can be sown very evenly at a slow walk, the box being raised and lowered with a sharp jerk. As the seeder is kept close to the ground whilst the seeds are being delivered, they can be deposited quite well even if a wind is blowing. After the seed is sown, the ground should be firmed down by the rake, stamped over with the feet or pressed with a heavy roller.

For the second plan of sowing, the set are planted by pressing them into the soft soil along the line from three to four inches apart. The amateur generally prefers a large "set," but experience teaches that the smaller the set, so long as it has life in it, the better it is, as they are not so liable to run to seed as those of larger growth. Growing from sets is probably the simplest and easiest method of raising onions, but as the sets come expensive when a large quantity are used, and as the keeping qualities of the onions are not considered equal to those grown from seed, they are not so reliable for winter use.

The third method is the new hot-bed process. The seed is started early in March in a moderately cool frame. It is sown thickly but evenly. When the onion is about the size of a lead pencil or a little smaller, and the post well out of the ground, they are transplanted along a line somewhat similarly to the sets. Care should be taken to handle the plants as little as possible, so that the "bloom" on the stems may not get rubbed off, as this would check their growth.

Sometimes a gardener will plant the young onions two inches apart, when they are of sufficient size, removing every other one. A friend of mine claims he can sell sufficient of these "bunched" onions to pay for the expense of the seed and the labor bestowed on the entire crop. Certainly his yield of onions is a marvel to behold, his soil

is a very sandy loam, but is situated in the sewage field of a large public institution. There are sewage ditches on each side of the bed, which is ten feet across. An engineer from Cleveland came one day to inspect the sewage farm just as the gardener was having the onions taken up, seeing them lying in rows on the ground as they had been pulled, he said, "Oh, I see you are hauling your onions here to dry them before storing them away for the winter." "Why," said the man, "these were all grown on the ground as you see them." Mr. Engineer laughed him to scorn for trying to impose such a yarn on him, but my friend fortunately had a patch at the far end of the bed still unremoved from the ground, so he took the Clevelander down to where they were growing, and gave him occular demonstration of the enormous yield, which the engineer declared if he had not seen he would not have believed.

The greatest trouble in growing seed onions is the first weeding, but if the rows are put in very straight and the hoe is kept keen and sharp, with a moderately fine flat file, so as to cut the earth to within a hair's breadth of the seedlings, a good deal of the labor is removed. After the first weeding has been accomplished, the wheel hoe cultivator may be employed successfully.

To keep the onions through the winter they should be placed on benches made of slats a couple of inches wide, placed an inch apart, so that the air may pass through them. Not more than two layers of onions should be placed on each bench or tray. The temperature should be reduced to 40°. It is said that onions grown by highly concentrated fertilizers do not keep so well as those raised by well rotted barnyard manure, but of this the writer cannot speak authoratively, never having tried the experiment.

P. E. Bucke.

London, Ont.

HOW TO HAVE BEAUTIFUL PANSIES.

PANSY seed sown now in pots or boxes in a warm room or hotbed, will, if properly cared for, produce blooming plants all summer. The seed should be scattered very thinly and covered not more than one-eighth of an inch deep, then pressed down with a piece of board and kept moderately moist all the time. When the plants are large enough to be handled, they should be pricked off about two inches apart, and when danger of severe frost is over, planted outdoors about 12 inches apart each way in a position where they are sheltered from the mid-day sun. In dry weather they require a good deal of water, and an occasional watering with liquid manure will help them wonderfully. All faded flowers must be cut off at once else they will produce seed and detract a great deal of strength from the plants. With pansies, as well as many other plants, the oftener the flowers are cut off, the more new ones will be produced. For early spring blooming, the seed should be sown in August, outdoors, in well-prepared seed beds. During hot dry weather it is best to shade the seed from the dtrect rays of the sun until they have germinated, which will be in about ten or twelve days. The soil can hardly be made too rich and deep for pansies. — F. M. Hexamer, Amer. Agriculturist.

Flower Garden and Lawn.

SOME GOOD HERBACEOUS PERENNIALS.

HERBACEOUS Perennials are those plants whose roots remain in the ground from year to year, the foliage dying down to the surface of the ground every autumn to grow up with renewed vigor in the spring.

As most plants of this class do best if their roots are not disturbed for several years, it is necessary in preparing a perennial border to dig deeply and fertilize well before planting. Though many of them are perfectly hardy without protection, all are the better of a coating of four or five inches of strawy manure in the fall; leave it on as late as possible in the spring so that the rain may wash out the soluble plant food. As soon as growth begins rake off and remove the surplus straw and rake or very lightly fork over the surface, being careful not to disturb the roots. Never use a spade in the perennial border.

A very frequent objection to the free planting of herbaceous perennials in the garden border is that it costs too much to buy the plants. There may be some truth in this if one wants to get all the novelties as they are sent at high prices, but there are many of them that cost little more than geraniums or other bedding plants that have to be renewed each season, with this great advantage in favor of perennials, that they increase in vigor and beauty every year, and after the third season most of them can be divided and multiplied as much as desired. While if one is willing to wait a year many of them can be grown from seed at very small expense.

All of the following are well-tested sorts, quite hardy even in the cold section of Ontario, and vary in flowering season from the first week in May till snow falls:

Papaver Nudecaule—Iceland Poppy.—This dainty little poppy one of our most valued perennials opened its first flowers on May 4th, last season, and was more or less in bloom till the end of October. The flowers in white, yellow and orange-red of which yellow is the commonest are somewhat cup-shaped 1½ to 2½ inches across on long wirey stems about 12 inches above the leaves, are well adapted for cutting, if cut in the morning early after opening they last for several days. It is easily grown from seed and will bloom the first year, if sown in April or early in May. It, like all poppies, does not take kindly to transplanting and should be sown where it is to remain. They are easily wintered even as far north as Ottawa if covered in the fall with straw or cedar brush.

Papaver Orientale.—A great contrast to the dainty little Iceland is the gor-

geous Oriental poppy one of our most striking and showy garden flowers. The great flowers 6 to 8 inches across, dark scarlet in color are held well up above the leaves on long leafy stocks. Unfortunately the flowering season is short, two or three weeks in June and their glory is gone, though some years they show an odd bloom during the summer. They also can easily be grown from seed and are quite hardy.

Doronicum.—A very desirable perennial, that is not as well known as it should be, is the tall Leopards' bane, Doronicum plantagineum excelsum, a very early blooming yellow composite, coming into flower early in May, and lasting two to three months. The large flowers about 4 inches across, are borne on sparsely leafy branching stems three to four feet high, rising from a large cluster of heart-shaped leaves on long petioles: this is decidedly the best yellow composite. Another Leopards' bane is D. Caucasicum, not so large a plant or flower but otherwise much like it, both are usually propagated by division in spring or fall.

Helianthus Multiflorus fl. pl.—A deservedly popular autumn flowering yellow perennial is the double sunflower, rather rough in leaf and stalk to make a good cutting flower, but very effective in the garden. The flowers are from three to four inches across, a good rich yellow, perfectly double, and last a long time after opening. In bloom from August till frost comes. It has not proved perfectly hardy here and requires the protection of a good mulch of manure during the winter.

Platycodon grandiflorum — Chinese Bellflower.—The best blue perennial we have, grows from two to three feet high and is covered from middle of July till October with deep blue bell-shaped flowers, from two to three inches in diameter, perfectly hardy and easily grown from seed. If planted in May it will flower abundantly the following year. There is a white form that is not so desirable, a slight tinge of blue gives it a faded look.

The genus Spiræa furnishes some of our very best perennials. Among the shrubby species Van Houtti, Burmalda, and many others are well worth growing when space will permit. The best of the herbaceous species are the following: *Spiræa Ulmaria fl. pl.*, Double-white Meadowsweet. From a dense cluster of root leaves rise leafy stalks about three feet high, covered on the top with a solid mass of creamy-white, fluffy flowers, from about July 1st to August 15th. The foliage is quite ornamental before and after flowering, if the flower stalks are cut out after blooming. It is propagated by division in spring or fall and should be shifted every three or four years, as it increases so rapidly that it is apt to die in the centre of the clump if left too long in the one place.

S. Venusta, "*Queen of the Prairie.*"—A weaker growing species and does not make such a bushy clump as Ulmaria, but grows about a foot higher, the clusters of flowers are more elongated and are a bright pink in color, season about a week later, decidedly the showiest of the herbaceous spiræas.

S. palmata elegans.—A very graceful plant about three feet high, with flattish clusters of pink and white flowers, lighter and more delicate in growth than Ulmaria though somewhat of the same habit, it is upon the whole the most beautiful and desirable of the genus.

Phlox Dicussata.—The new varieties of the old fashioned perennial Phlox have raised it from the position of a very commonplace flower, limited in color and small in size, to that of one of our most valuable perennials. From no other can we get such a mass of color

in the border, or such a variety of shades. One English house catalogues 145 varieties, ranging from white through all shades of pink, to dark red, and from the palest violet to dark purple. There the season of bloom is from July till fall, some varieties flowering earlier than others. The first clusters are the largest and finest but if the tops are cut off some of the shoots as soon as the buds form, they branch out and produce firm heads of flowers late in the season. A good half dozen varieties are, The Pearl, white; Sir Richard Wallace, large white with violet eye; La Soleil, lilac rose; Isabay, orange salmon; August Riviere, fiery-red shaded violet; Frau Von Spiemen; salmon pink, a very fine sort, flowers 1½ inch across slightly curled inwards at the edge.

Dictamnus Fraxinella, or Gas Plant, is a very showy and interesting plant that should be more widely known. While far from being a novelty, it increases so slowly, often growing for years without any apparent increase in size, that it has not been very widely disseminated, very few gardens being so fortunate as to possess a good specimen. It grows about two feet high, a well established plant being about as much in diameter, each stalk terminated by a spike of rosy flowers eight or ten inches long, at their best for a month after May 20th. The leaves resemble those of the ash, and if gently pressed emit a perfume like lemon peel, but if bruised the odour is balsamic and somewhat strong for most tastes. The volatile oil that produces this odour is secreted so freely, that if a match is applied to a newly opened flower on a hot day a slight explosion ensues. D. F. alba is a very handsome variety with pure white flowers.

Lysimachia mummularia. — If you have any place too much shaded by house or trees for any of the ordinary flowering plants—or even grass—to grow, but which you would like to have covered, try Lysimachia mummularia,—money-wort or creeping jenny, by far the best creeping perennial we have for that purpose. It spreads rapidly, rooting at the joints, and throwing out lots of side branches; but as it does not produce underground shoots it is easily kept within bounds. The leaves are oval in shape, about 1½ inches long, of a rich dark green color, and are produced so freely as to completely cover the ground. The flowers, bright yellow, cup shaped, about ¾ of an inch across, are in great abundance during June and July.

Ottawa. R. B. WHYTE.

(To be Continued.)

KEEPING ROSES IN BLOOM.—As soon as they have found their first flowers in the open ground, pinch off the end of the first shoot, and as soon as the rose is fully opened, pick it off. No rose should be left to fade upon the bush, as when so left it exhausts the plant in the formation of seed. As the plants grow, pinch back the ends of the shoots when they have grown six inches, and rub out all puny shoots, thus keeping the plants in a rounded open bush form. If strong shoots alone are left to grow, they will soon control the strength of the plant and the flowers will be few and often of imperfect form. Should the season be hot and dry, a mulch of fine fresh grass or sawdust, or moss from the woods, should be placed all over the soil, three inches deep, and at night watered thoroughly, not sprinkled, but wet like a days' rain.

A. H. CAMERON.

Tiverton, Ont.,

THE HOME SURROUNDINGS.

THE present being a season of comparative leisure, is the best time for those desiring to improve the appearance of their gardens or pleasure grounds to consider the subject. All planting or re-planting that may be done with a view to improved effects will prove more successful if done with a definite object; for instance, before an experienced landscape gardener begins such a work, and before any manual work is done, he inspects the grounds, making a rough sketch and a few notes. This visit may be repeated more or less often as the case may demand, but the result is that he carries away to his office or workroom all that is needed to enable him to convert the waste, or vacant place, into what will be in a few years at the furthest, a pleasing and beautiful spot, increasing in beauty from year to year as the different shrubs, trees or plants employed become established and develop their respective beauties. In the accomplishment of this work he will, of course, remember past mistakes, and avoid their repetition, always observing certain well-known laws, the non-observance of which would defeat his efforts. He seldom treats an individual shrub or tree as a specimen; for illustration, imagine in the one case a number of shrubs planted either at regular or irregular distances upon the lawn, in the other the same shrubs or trees grouped with a well defined object. The result in the first case will be doubtless some very pretty specimens, but no stretch of lawn, nothing restful to the eye, nothing that will create a pleasant and lasting impression; while in the other case the impression given would be "what a beautiful lawn," "what a delightful home." It is never desirable to plant shrubs in holes cut in the grass, the effect is disappointing at the best. "Landscape" does not necessarily imply an expansive view, and it is well, in designing the grounds that are limited to the ordinary city lot, to remember that grounds that are large and beautiful would lose their beauty if the same effects were attempted on a small scale. Whether the work in view be on a large or small scale, no workman has a larger choice of material from which to make his selection than the landscape gardener. If a fence is to be hidden, there are the wisteria, clematis, bignonia, ampelopsis, aristolochia, akebia, celastrus, and many others. If for a wind break or a blind, nothing will so perfectly answer the purpose, and at the same time afford such a comfortable appearance in the winter season as the evergreens, among which may be mentioned Norway spruce, everyone's favorite; White spruce, of a finer foliage and denser growth but not as well known; Nordman's pine, quite hardy and of great beauty; Colorado blue spruce, Abies Orientalis, a beautiful variety; Abies Canadensis pendula or weeping hemlock; Abies Canadensis, our native hemlock, has also much to recommend it; also our native Cedar, Thuya occidentalis. Many of the Thuyas are very beautiful, and well adapted for planting over a large part of Canada. Some of them are of a very dwarf habit, and can be planted where other conifers would be too large. By no means the least important factors in the decoration of the grounds surrounding the home are the flowering shrubs. With this often badly used and not very well understood class of plants, an endless change of varied and beautiful effects is obtainable, but no clipping, no attempts to convert

a shrub into a tree, or good-bye to their natural beauty. Beginning with the Forsythia, Xanthoceras, Flowering Currant, Spirea prunifolia, fl. pl., Cydonia japonica, which flower in May; closely followed by other Spireas, Deutzia, weigelia, Double Flowering Almond, Philadelphus, Rose Acacia, Lilac, Snowball, Hydrangea, Althea, Hypericum, etc., these will give an uninterrupted succession of bloom up till the end of September.

There are number of shrubs whose chief beauty is in their foliage, viz.: Berberis thunbergia, Golden Elder, Variagated Cornus, Mahonia, and many others, every one having their own distinctive points of beauty, and when planted in groups or masses serve to bring out the beauties of each other. Let the planting be done thickly, it is easy to thin if needed, but by no means as easy to start a young shrub among a lot of older ones; study the general appearance, time of flowering, habit, etc, in short, let the arrangement be the result of careful study and observation, although apparently careless as far as possible, eliminate all straight lines, for Nature knows them not. The student of Nature in matters pertaining to gardening will utterly ignore the freaks of fashion such as cast iron bull dogs, gigantic frogs and other such uncouth monstrosities, none of which will find a place upon the lawn of the true lover of Nature.

WEBSTER BROS.

Hamilton, Ont.

THE COOL SECTION OF THE GREENHOUSE.

DURING the first months of the year while the plants in the warm section of the conservatory are in a dormant condition, the cool house is in all its glory.

For mid-winter bloom there are no plants equal to the Primula and the Cyclamen, the latter of the new grandiflorum strain is my favorite, both of these should be raised from seed and that only of the best quality. The Primula is the easier to bring to maturity, ten to twelve months from sowing will produce large plants requiring five and six inch pots by blooming time.

Sow the seed early in the year on the surface of the soil, preferably a light sifted loam, in a pot or shallow box, press down evenly and water with a fine rose which should cover the seed sufficiently, if not press them just below the surface, cover the pot with glass to prevent drying out but always leave a small opening for ventilation or the plants will damp off. keep from direct sun during all stages of growth.

When the first leaf appears prick into thumb pots or flats, shifting as growth advances until the bloom pots are reached in early autumn. Never cover the crown in potting, and pinch out all flower buds, that may appear before they are established in the blooming pots. The above course will produce large exhibition plants the first season, with flowers of the largest size. Greater satisfaction will be given if new plants are grown each year and the old ones discarded after blooming.

The Cyclamen is a gem of the first water and has no equal as a winter bloomer, the pure delicate beauty of its flowers, and the rich marbling of its thick leathery foliage, coupled with great substance and durability, fairly entitle it to a first place in the cool section.

In order to ensure the highest degree of success it should be grown from seed,

but unlike the Primula the bulbs may be kept on for several years until they show weakness They may also be bought as plants, but dormant bulbs are undesirable, as the one point to be observed is that they never be allowed to dry out.

About fourteen months is necessary to bring the Cyclamen to blooming size. Seed sown in October and given much the same treatment as the Primula, will produce strong plants which will bloom freely in January and February the second year. Sow the seed in flats, barely covering with soil, keep in partial shade at all times, give air at all stages of growth, this is particularly necessary as the blooming season approaches, which may be prolonged by keeping an even temperature, say 55 degrees at night, and 60 during the day. Five degrees less will materially lengthen the season of the Primula, which lacks the substance of its beautiful contemporary. It is not necessary to cover sown seeds of the Cyclamen with glass. Never pot the bulb deeper than scant half its depth.

The Azalea is a most satisfactory coolhouse plant, blooming freely at this season. Continued success depends entirely on the proper treatment, which is directly contrary to the advice given in past years. After blooming give full exposure to the sun in order to keep the new growth healthy. After danger from freezing pick off the seed pods, and pinch back all uneven growths to keep the head in good form, re-pot if necessary, and plunge in the open ground for the summer, giving full exposure to the sun. The best results will be attained where the most syringing of the foliage is given, with a decided under cut, during the hot dry season. By this course the plants may be yearly increased in size and value.

Space will not admit detailing the treatment of many other useful plants for the coolhouse. Carnations planted in shallow boxes do better than in pots, the same may be said of roses. Swainsonia bears a pretty pea-shaped flower with delicate perfume. Genista may be added. The Clivia, an evergreen, bears a gigantic truss as large as a child's head, and if kept in an even temperature the last flower will open before the first falls, making a grand show for fully a month. Cypripedium insigne brought in from the warm section as the flower buds open, will remain in bloom for three months.

If the size of the house will admit, the following may also be given a place in the collection : English primrose, geranium, abutilon, fuschia, chrysanthemum, nasturtium, and mignionette. In bulbs the hyacinth, narcissus, crocus, freesia, tulip, and some varieties of iris, not forgetting Bermuda and Longiflorum lilies, also the species Speciosum about to be distributed by our Association.

The coolhouse if properly ventilated at all times, and freely syringed in the morning of all bright days, will be free from insect pests, and may be a mass of delicate beauty and brilliant colors from December to April.

If pressure of the advancing season will admit, I hope later on to refer to the intermediate house with a night temperature of sixty degrees, and also to a model propagating house, with a combination of hot water and flue, the ideal heating system of my experience.

H. H. Goff.

Simcoe, Ont.

Our Affiliated Societies.

The date of annual meetings of the Horticultural Societies of the province were fixed by law for the 13th of January at 7.30 p.m. At this meeting it is usual to attend to the annual business, the election of officers, etc. We are receiving from our Affiliated Societies lists of officers elected and, in many cases, some account of their work. These will be printed in full in the annual report which will soon be published by the Department of Agriculture and placed in the hands of every member. It is not necessary, therefore, that a full list of the officers appear in the journal, but, for convenience of correspondence one with the other, we give the name of the President and Secretary of each Society.

NIAGARA FALLS SOCIETY.—This active and flourishing Society numbered over one hundred members in 1896, and has already reached over fifty for 1897. On March 7th, 1896, a show of house plants was made, at which Messrs. A. McNeill of Windsor, Jas. Shepherd of Queenston, and T. Greiner of La Salle, N. Y. delivered instructive addresses to a large audience. On the 18th of June, the Society made an excursion to the Ontario Agricultural College at Guelph. On August 27th, a fine exhibition was made in which begonias were most prominent. An orchestra in the evening was much appreciated. Many members exhibited plants and flowers. Wild grapes and some very fine Japan plums figured among the fruits. In September a very fine chrysanthemum exhibition was held. The Society holds a business meeting on the second Monday of each month and on the third Monday an open meeting to which all the members and their friends are invited, and at which essays, lectures and discussion are in order. A small flower show is often an attractive feature. The directorate make up a happy family, and includes our ladies in the list for 1897.

E. MORDEN, *Sec.*

PORT DOVER SOCIETY.—The annual meeting of the Port Dover Society was held in the town hall on Wednesday evening, January 13th, and was well attended and full of interest. The auditors' report showed a small surplus, and the Secretary-treasurer was complimented upon the neatness and accuracy of his accounts. The Society was inaugurated in 1896 with only twelve members. It has now the full complement required by law to entitle it to the Government bonus of $100 which will help not a little to increase the efficiency and influence of the organization during the coming year. Its members comprise a good many of the prominent and influential fruit growers and others in the district and, if the present interest in it is kept up, it will prove of great value to the community. All members are entitled to a copy of the CANADIAN HORTICULTURIST, recently enlarged and improved, a bound copy of the annual report of the Fruit Growers' Association and a share in the plant distribution.

The Secretary.

WATERLOO.—The following circular has been issed to the members of our Society :

The Ontario Fruit Growers' Association have notified us that they will send in time for Spring planting one of any of the four

Special Premiums below for each member of the Waterloo Horticultural Society who asks for it before the end of January, 1897.

Special Premium No. 1, one plant of new Japan Lilac, very choice and valuable. No. 2, one bulb of Japan Lily "Speciosum Roseum" very handsome and easily cultivated. No. 3, two plants "Conrath" raspberry, the largest early black cap known. No. 4, one pear tree, three years old, "The Dempsey," a cross between Bartlett and Duchess.

This is in addition to the premiums already offered by this Society. Please inform any of the Officers of this Society which of these special premiums you prefer, and please remember that unless you ask for one of these special premiums none will be supplied you, as it will be concluded you do not desire any of them.

JAS. LOCKIE, *Pres.* W. A. RAYMO, *Sec.*

WATERLOO.—There was a good attendance at our annual meeting, including quite a number of ladies. After reading of reports, the directors report was read and officers were elected for 1897. The following is an abstract of the Directors report:

The membership has increased during 1896 to 125, each of whom has received the CANADIAN HORTICULTURIST. The Society distributed trees and plants as follows:—61 cherry, 61 plum, 61 pear, 23 speræas, 23 roses, 23 clematis, 96 cannas, 32 dahlias, 320 gladioli, 312 house plants, and 1,500 hyacinth bulbs. Open meetings for discussions have been kept up during the year. On the 17th of March last the F. G. A. sent Mr. D. W. Beadle, the well-known horiculturist, to us, who delivered an excellent lecture on "The Garden," to a good audience. On the 20th and 21st of August, 1896, the Annual Free Exhibition of flowers, fruits and vegetables, was held in the Town Hall, and was a fine success, the plants being so arranged by the ladies as to show off to the best advantage. Your directors feel that this manner of conducting the affairs of the Society, and not spending our money in giving prizes for exhibits, and having our exhibitions free, is the best plan, and fully carried out the intention of the Government in assisting these societies.

JAMES LOCKIE, *Pres.*

[The above will appear in full in our Annual Report.]

GRIMSBY.—The Annual meeting held on Wednesday, 13th January. Treasurer's report showed balance in hand of $28.95. The total receipts were $119.30. The following is a list of officers for 1897: President, E. J. Palmer; Vice-Presidents, L. Woolverton and Mrs. Adolphus Pettit; Directors, Mesdames Lucas, Smith, Nelles, Messrs. Grout, VanDuzer, Pettit, Reid, Terryberry, Gibson; Secretary-Treas., E. H. Reid.

The Society has decided to make a distribution of chrysanthemums in April. Each member is to receive five fine potted plants assorted colors. These are now being grown by a florist, who will transplant them several times to five inch pots, so that they will be almost sure to bloom even in the hands of amateurs. Should they succeed well, the intention is to have a chrysanthemum exhibition in November.

PORT HOPE SOCIETY.—At our annual meeting the reports showed our Society to be in a flourishing condition.

During the year the sum of $333.54 was received from all sources, and $238 94 expended in bulbs, plants and magazines (HORTICULTURIST), leaving balance of $94.60 with which to begin the year 1897. Six ladies have been added to our officials as Advisory Board and sub-directors.

A. W. PRINGLE, *Sec.*

PORT COLBORNE. — There was a gloom cast over our annual meeting, because one of the most active and influential members has passed away, viz., Mr. L. G. Carter, who died at his residence, "Rose Lawn," Dec. 30. It was through Mr. Carter's efforts that the Horticultural Society was organized here, Feb. 23rd, 1895, and he was 1st Vice-President at the time of his death. Our Society passed the following resolution:

Resolved, that this Society desires to place on record its sincere sorrow at the loss of Mr. L. G. Carter, who for many years took a prominent and public spirited part in all undertakings tending to promote the progress and welfare of this community, and whose name is honorably identified with the history of this locality during the greater portion of his long and useful life.

A. E. AUGUSTINE, *Sec.-Treas.*

A List of Some of the Affiliated Horticultural Societies:

Picton—President, Lieut. Col. T. Bog; Secretary, W. T. Ross.

Simcoe—President, Rev. Canon Young; Secretary, Henry Johnson.

Brampton—President, Dr. C. Y. Moore; Secretary-Treasurer, Henry Roberts.

Napanee—President, Mrs. Judge Wilkinson; Secretary-Treasurer, E. H. Reid.

Grimsby—President, Mrs. Edgar Palmer; Secretary, E. H. Reid.

Lindsay—President, W. M. Robson; Secretary, F. J. Brampton.

Port Hope—President, H. H. Burnham; Secretary, A. W. Pringle.

Port Colborne—President, E. O. Boyle; Secretary, E. O. Augustine.

Durham—President, Christopher Firth; Secretary, Wm. Gorslin.

Woodstock—President, D. W. Karn; Secretary, R. B. Thornton.

Belleville—President, W. C. Reid; Secretary, W. Jeffers Diamond.

Smith's Falls—President, J. S. McCallum, M.D.; Secretary, not given.

Port Dover—President James Symington; Secretary, W. J. Carpenter.

Meaford—President, Oscar Boden; Secretary, A. McK. Cameron.

Niagara Falls South—President, M. P. Lyon; Secretary, E. Morden.

Kincardine Horticultural Society.—Sir,—I beg to inform you that conformably to the Agricultural and Arts Act the Society here met on the 13th inst. for organization and election of officers. Mr. A. C. Washburn was elected President, and Joseph Barker, Secretary.

The Secretary was instructed to acknowledge the receipt of a bound copy of the Horticulturist and one of the Fruit Growers' Reports, for our library, from the Ontario Society.

Joseph Barker, *Secretary.*

Lindsay Horticultural Society.—Dear Sir,—I send you some extracts from my report as Secretary, read at our annual meeting:

During the year we have held six Directors' meetings and one public meeting. We have distributed 1,600 hyacinths and 2,000 tulips, also a large number of other plants. Also we have circulated among our members 102 copies of The Canadian Horticurist. Our grant from the Ontario Legislature was the liberal sum of $95, the benefit of which is given our whole membership, as indicated above.

F. Frampton, *Secretary.*

Durham.—At the annual meeting of our Society, after the election of officers it was resolved that this Society affiliate with the Ontario Fruit Growers' Association. We hope to send you at least one hundred names.

Wm. Gorsline.

PLANTING HYACINTHS.

IN the matter of January planting of Hyacinths, we believe that as a general rule better results can be obtained by earlier planting, although we have never found that the September started bulbs resulted any better than those started one or even two months later. If the bulbs are stored in dry sand, in a cool place; it is quite probable that if planting is delayed even as late as January, that good flowers may be obtained; yet we would prefer to plant early, say in four inch pots, and plunge the pots in a cold frame, covering with leaves, the pots however must be brought into a warm and dark place for three or four weeks preparatory to placing them where they are to bloom, as in cold quarters they will make little if any roots during the winter months, and the pots must be well filled with roots before exposing to the light, in order to have good spikes. We think that the rather obscure meaning of the sentence referred to in the article upon "Hyacinths," in the January number, is that the soil should as far as possible be kept at all times uniformly moist until the bulbs have made a good start, and that in a dark place.

Webster Bros.

Hamilton.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 4,000 copies per month.

Notes and Comments.

PHOTOGRAPHS WANTED.— In order to furnish our journal with original illustrations we would be pleased to receive from our subscribers photographs with descriptions of the same for publication. Of course we do not promise to engrave every photograph received, but only those most suitable to our work. Among those most desirable are views of: (1) country houses and flower gardens; (2) flowering plants; (3) borders, groups of hardy plants, ferneries and rock gardens; (4) lawns, old orchards, wild gardens, grass walks, and picturesque drives; (5) rose gardens; (6) best garden fruits.

THE COLD STORAGE TRANSPORTATION SCHEME.—The Committee on this subject met the Hon. T. Fisher, Minister of Agriculture, and Mr. James Robertson, Dairy Commissioner, at the Royal Hotel, Hamilton, on the 20th January.

The committee claimed that it would be desirable to forward at least a car load a week of the choicest Canadian fruit, in order to make a fair commercial experiment; that these shipments should continue throughout August, September and October, with tomatoes, early apples, pears, grapes, peaches, etc.; that these should be stored in cold warehouses at shipping points and be chilled before placing in refrigerator cars, and that a Dominion agent in Great Britain should watch the British markets—advise as to consignees, and report fully concerning the reception of our fruit among British consumers.

It was also claimed that owing to the uncertainty about the success of the undertaking—the valuable nature of the choice fruits proposed for shipment, each carload being worth about $400—and the fact that at first the work is purely experimental and for the good of the whole country, it should be sufficient on the part of the growers if at two or three points they would combine and agree to furnish one experimental carload each week, of choice assorted fruit, and that the Dominion should erect at these points small store houses, which the growers would on their part agree to take over at a valuation within three years, should the scheme prove a success.

The Minister considers these points somewhat favorably, and it is probable

that enough growers in the Grimsby, Winona and Burlington district can be induced to combine upon this experimental work, so that it may be thoroughly tested for the general good.

WISMER'S DESSERT APPLE.—On January 7, we received from J. W. Wismer, Port Elgin, a sample of his new winter dessert apple. It is medium in size, beautifully colored, with flesh of such fine grain and buttery character thatone might easily take it for a pear if one's eyes were closed. The flavor is excellent, and judging by the sample it is unsurpassed for the dessert table.

ERRATA.—We regret the accidental transposition of titles on pages 8 and 11, the former being the Hospital for the Insane, and the latter the Art Building of Queen's University.

DECEASE OF ONE OF OUR DIRECTORS.—Mr. A. McD. Allan writes to acquaint us of the death of Jno. Stewart, of Benmiller, on the 12th of January, at the age of sixty-two. Mr. Stewart was with us at Kingston, and seemed in good health, taking a deep interest in our proceedings; and we grieve to hear of this sudden and unexpected loss. Mr. Allan writes "He was a quiet man, who never pushed himself into office of any kind, and yet, in his career in Huron, his name has for many years been uppermost when the people desired to fill any public position of trust. In his own business he enjoyed to a full degree the confidence of the people, as his word was always a guarantee of truth and uprightness. For over a quarter of a century he belonged to the Goderich Horticultural Society, of which he was for some time president. He had been an active worker on the Board of the West Riding Agricultural Society, the Township of Colborne Society, and in later years of the North-Western Exhibition. We all miss him; we have lost a friend, a horticulturist of the truest stamp, who read in all his studies of Nature, the hand of the Great Creator. It can be truly said the world is better because he lived in it."

THE NEXT MEETING of the O. F. G. A., will be held in the town of Waterloo, in December. Invitations have been received from St. Catharines, from the Whitby Horticultural Society, and the South Essex Horticultural Society at Kingsville, and no doubt these places will all be visited in course of time. It is urged by the latter that Essex is a very important fruit growing county, for peaches, grapes and small fruits, one grower alone having about forty acres of peaches in bearing, a single raspberry plantation has yielded over 1800 baskets in a single day, and one grower of strawberries in 1896, has picked and packed one hundred and twenty-four qt. crates of these berries in a half day.

SOIL TOO POOR.—It is a common complaint this season that fruit does not pay as well as it usually does, and many are discouraged. Now we are convinced that much of the failure is due to poverty of soil. Many of our foremost fruit growers apply little or no fertilizers to their orchard and garden; all the manure goes to the corn or turnip fields. Now such treatment will not produce good fruit, and good fruit is the thing wanted now-a days, while second class stuff goes begging at any price.

Every apple tree when it has reached bearing age should receive about 50 lbs. of stable manure, 10 lbs. of bone meal, or superphosphate, and 20 or 30 lbs. of wood ashes every year, and we would like to know how many

orchards receive any such treatment. In nine cases out of ten, they receive no fertilizers at all, and yet they are expected to yield abundant crops of fine fruit.

Each bearing cherry tree, too, ought to have, say 25 lbs. of stable manure (one lb. nitrate of soda), 5 lbs. of bone meal, (or dissolved rock), and about 12 lbs. of wood ashes. Does it receive any such treatment? Instead of this, it gets no fertilizer at all, and heaps of abuse for not yielding finer fruit and more of it.

We have much to learn yet, if we would be successful fruit growers.

NOTES OF FAILURE.—In the December No. you ask why members do not write about their success or failures. I will write a few lines about my failures since I have been in Canada. Some four years ago I planted ten acres of grapes and, owing to the dry season, many of them have died and have been ploughed out. The rest did well until last year's frost, since which many of them have never leafed out. I will have to dig the rest and plant them near together. Last year I worked a ten acre vineyard on shares and had nothing for my labor. This year my share was 300 gallons of wine, and I will have to wait until next year before I can sell it. At present I have not enough money to pay my subscription to your journal, which is too bad. What little money I have had was made out of 1500 gallons of cider, or what we Germans call "apple wine." I put pure cane sugar in it, which will make a good drink. I have had lots of experience, but very little result. I would be glad if any of your gentlemen could find me a market for my wine which will be ready in about a month. I believe, if I could find a place with a large fruit grower, I would do better than keeping on with the old vineyard.

J. GRUENBECK, *Cayuga, Ont.*

FORCED LILY OF THE VALLEY.

LILY of the Valley is now to be seen in the flower stores during fully 11 months of the year. It is very readily forced into bloom, the "pips," as florists term the little bulbs, being merely planted in pure sand, freely watered, shaded, and kept in a high temperature. Twenty to twenty-five days of this treatment bring them into bloom. Sand is used because they are not expected to produce roots, merely to force out the flower through the nutriment stored in the bulb. Under ordinary conditions, while the flowers could be produced at any time during winter previous to the normal period of blooming, they could not be produced after that, but the florists have obviated this difficulty by putting the bulbs into cold storage until needed, these cold storage roots providing the summer flowers. The lily of the valley bulbs forced in this country are all imported, being grown in France, Belgium, Holland, Germany and Russia. It is easy enough to force this plant by digging up some clumps from the garden bed. A square clump might be dug before the snow covers the bed, and stored in a cold place until wanted. Freezing will not do any damage. In this case, the bulbs should not be disturbed, the whole clump being put in a pan, and brought along gently.—Ex.

Question Drawer.

Amaryllis not Blooming.

907. Sir,—Why is it that my Amaryllis will not bloom? I have had it several years, and given it ordinary treatment with other house plants.

A Subscriber.

Reply by Prof. Hutt, O. A. C., Guelph.

In answer to your correspondent's question as to why her Amaryllis will not bloom, I would say: This is a very general complaint, and the trouble generally is that the habit of the plant is not understood. The Amaryllis must have a period of rest after each period of growth, and unless it get such a rest, it will not be likely to bloom. As long as the plant is sending out new leaves it should be given plenty of light and watered regularly, but as soon as the new leaves stop coming and the lower leaves begin to turn yellow, it is an indication that a rest is needed. This should be encouraged by taking the plant out of the light and giving only water enough to keep the bulb plump. If all of the leaves dry up no harm will be done. After several weeks of complete rest the plant will begin to resume growth, and often the first signs of it will be the appearance of a flower-stalk. When growth commences the plant should be put in the light, be given a little more heat and should be watered freely. A very dilute application of liquid manure once or twice a week at this time will help to increase the size of the bloom and the vigor of the plant.

Fertilizers for the Lawn.

908. Sir,—I have a large lawn, 110 ft. x 200 ft. Kindly tell me what quantities of nitrate of soda and phosphate of lime I should use, and should these substances be dissolved, or applied dry, and at what time of the year?

A. Boehmer, *Berlin, Ont.*

For a lawn of about half an acre, such as the one described, we would recommend about 100 lbs. of nitrate of soda and about 100 lbs. of superphosphate. This latter might wisely be applied in the form of bone meal, 50 lbs., and acid phosphate (dissolved rock) 50 lbs. We would also recommend the addition of potash in some form, say, 200 or 300 lbs. of wood ashes. These may be applied separately, in a dry state, and each sown evenly over the ground. The best time for the application is in early spring.

Pears for Algoma.

909. Sir,—What pears would you think suitable for this locality? Also, would quinces succeed?

W. H. McNab, *Jocelyn, St. Joseph's Island, Algoma.*

We have as yet no definite information regarding the suitability of that district to our various fruits. We would advise our subscriber to try Flemish Beauty and Sapieganka pears Possibly Clairgeau would succeed also. Try also Orange quince on well drained soil, and report the result.

Fertilizer for Raspberries.

910. Sir,—What is the best concentrated fertilizer for raspberries and other small ruits.

W. R. Crux, *Mimico.*

Would recommend for an acre half a ton of wood ashes to furnish potash; and three or four hundred pounds dissolved phosphate rock; and say one hundred pounds nitrate of soda.

Open Letters.

Early Potatoes.

Sir,—In the Question Drawer No. 881 of the Canadian Horticulturist, A. F., of Ridgetown, asks the name of a first class early potato. I have had considerable experience with quite a number of varieties, and must say that the best in commerce at present is Burpee's Early. A new sort, however, will be sent out this season called Early Thoroughbred, a most wonderful variety. I tried it myself the past season, and am confident it is the greatest acquisition ever known in the potato line. Others who have tried it report the same. Earlier than Burpee's, in appearance and cooking qualities equal or superior, whilst a much larger cropper, in fact, I had double the crop, whilst one of my friends had a bushel from one tuber. As I have more than I require, it is probable I may advertise them in the Canadian Horticulturist.

W. J. Kemish, *Toronto.*

Hardy Grapes.

Sir,—I read an article in December number of the Horticulturist in reference to grapes shown at Rockwood Co. Fair. If your correspondent is correct in saying that the Moore's Early Grape was grown and exhibited at Rockwood successfully, why not advise Mr. Frankland to try some of the more hardy varieties, as I have seen the Moore's Early Winter killed in the neighborhood of St. Catharines. I would advise one variety which I think is somewhat neglected, and I consider it one of the earliest and best of the Rogers varieties, Rogers No. 33. It is easily distinguished by the following description, a short stout and well shouldered bunch and the stem very short between the bunch and the cane, black berry. Rogers No. 3 would be also worth trying, although it sets poorly sometimes. I think the quality better than No. 9, and it is also earlier. No. 3 being a red grape, I will allow some one else to name a white.

Roderick Cameron, *Niagara Falls.*

The Improved Journal.

Sir,—I have just received your circular proposing to improve the Canadian Horticultural Journal in the way of devoting more space to floriculture, etc. A journal treating on the culture of flowers has been a great want in this Province, and I know that the Canadian Horticultural Journal will be greatly appreciated, especially by the twenty-five Horticultural Societies in the Province of Ontario. For instance, we have a Horticultural Society at Niagara Falls South for 1896, the number of members was 107, and I hope that every one of them will take the Canadian Horticulturist. I hope to see its first number turn out as its name suggests, a thorough horticultural journal in every branch of the art. You have skill galore in Ontario if you only get them started to take an interest in one part of the art or the other, and I intend to contribute a few notes myself from time to time. Wishing the Canadian Horticulturist every success.

Roderick Cameron.

Tariff on Fruits.

Sir,—Until recently our fruits mostly found a market at home. Now the fruit production has overtaken the local demand and an outlet is the crying need. A prohibitory tariff on the smaller fruits has not prevented this state of affairs.

This outlet must be to the south, where we can reach markets *after* their own local supply has ceased. We in return must accept their earlier fruits *before* our season arrives.

A great and rapidly increasing market has been opened up in Buffalo and Detroit, which are contiguous to our chief centres of fruit production. Berries from Buffalo are shipped further south, where no local supply then exists.

Profitable berry culture in Southern Ontario depends upon the outlet. To retain this market, Canadians must imitate the liberality of our American friends, who exact no duties on the smaller fruits. This course on both sides will be of decided advantage to producers as well as consumers.

Growers are usually most anxious to sell fruit *when they have it* to sell. At other times bananas and oranges, duty free, injure our chances more than an early and necessarily high-priced supply of the ordinary fruits could injure us.

To secure our exclusion from the American markets and the consequent wiping out of our small fruit industry, our growers have only to continue their high tariff agitation. Supreme selfishness will get its appropriate reward sooner or later.

Our neighbors in this matter at least have exceeded the most extreme views of the Scriptural injunctions. Peradventure they may become "weary of well-doing."

Frontier fruit growers who have for years sold the bulk of their fruit in the United States comprehend the situation. This with us is a live question.

E. Morden,

Niagara Falls South.

Planting Hyacinths.

SIR,—As it is to the interest of all readers of the HORTICULTURIST that articles appearing in that Journal should be criticised, if the advice given be at all doubtful, an article appearing in the January number on the hyacinth is certainly open to criticism. The advice given there to plant hyacinths in January is against all well known authority. Instructions on growing bulbs always advise their being planted as soon as possible after being procured, and as hyacinths arrive in this country in September, would they produce good flowers if kept out of earth until January. Would not the better plan be to plant them as soon as received, and retard their flowering by keeping the pots in a box of ashes in a cool place. The sentence "until the shoots are two inches long, about the same proportion of water should be kept around them and the bulb, keeping them from the light and air," is very puzzling, and needs explanation.

T. A. W., *Napanee.*

We quite appreciate the general good that will result from criticisms and notes of experience from all our readers, whether fruit or flower growers. We did not take the article under consideration to advise planting in January rather than earlier, only to say that it could be planted early in that month for Easter blooming. We have ourselves planted a dozen bulbs to test the matter.

EXPERIENCE WITH CARNATION.

SIR.—Some two or three months since I observed a letter in your valuable monthly enquiring about Carnations. I intended at the time to send my experience as I have always been a lover of that flower; but something hindered until I saw in your last issue a notice soliciting communications on floriculture.

Steele Bros, of Toronto, advertised Marguerite Carnations which would bloom in four months from the time of seed-sowing and promised about 80 per cent. of double flowers. I sent for a ten cent packet and sowed them in March in a shallow box, in two rows about ½ an inch deep; I believe every seed came up; I had about twenty plants, which I set out in spring in a border about a foot apart. Nearly every one had some bloom in the fall and I had about 18 double flowers. Before the frost came I potted the double ones, took them into the house and had some blooming all the winter, not freely, but perhaps 6 or 8 all the time. As soon as the frost was gone I bedded them out and as they are apt to grow high and need support, I put in slender stakes, some of them were altogether to high and I cut them down which caused them to grow more stocky. When the flowering time came I had a magnificent display of carnations so that I frequently would give a good handful for a boquet to a visitor or neighbor and there still seemed as many as before. Perhaps they will not do much this year, but they had done so well that I could not throw them away, so I cut them pretty well down and have left them out all winter under a covering of stalks and leaves, by way of experiment.

JOSEPH WALLACE, SR.

Orillia, Jan. 19, 1897.

The Markets.

Recovery of the Apple Market.

Messrs. Woodall & Co., Liverpool, cable under date January 13th, as follows: Active consumptive demand, 4,900 barrels sold,—Baldwins first bringing 13/ to 17/; seconds, 7/ to 10/; Russets, 11/ to 15/; Greenings, 9/6 to 10/; Spys, 13/6 to 14/. They cable under to-day's date, 4,500 barrels sold,—strong demand,—market firm with good demand at last quotations.

Messrs. M. Isaacs & Sons, Ltd., London, cable to-day,—Baldwins first, 8/ to 10/, with improved demand.

No report from Glasgow.

Shipments from Portland this week are as follows:—Liverpool, 7,771 barrels, Canadian; Glasgow, 898 barrels, Canadian; Liverpool, 422 cases, Canadian; Glasgow, 177 barrels, Maine; Liverpool, 2,355 barrels, Maine.

The ocean freight to Liverpool, via Portland, is 1/6 and 5% primage; to Glasgow, 2/ and 5% primage.

The quotations given by Messrs. Woodall & Co., Liverpool, show a sudden and complete redemption of the market, a recovery from the demoralized condition into which the market had fallen was looked for with the turn of the new year, but it was not generally anticipated that it would have recovered with such rapidity. There is no doubt that this sudden reaction is due in a great measure to the cleaning up of oversupplied and unattractive fruit which has invaded the market with such persistency, and also to the curtailment of the excessive quantities which have so thoroughly tested the market during the first half of the season. The improved change will, no doubt, inspire shippers with a new hope and expectation of better prospects and remunerative prices, and that a bright period is now before us.

The quotations given in our cables represent the prices realized on the very limited supply of about 5,000 barrels, and until the demand of the market can establish remunerative figures, with the arrival of heavier supplies, we recommend caution on the part of forwarders, and advise them not to be over-sanguine about the future. We believe, however, that European requirements during the Spring of 1897 will be very large, and the general outlook could not be better. But shippers should thoroughly understand, that only really prime stock in good sound condition will be wanted, and that the markets are not prepared to take quantities such as have lately gone forward. The probable weekly requirements to return remunerative prices should be about 35,000 barrels, and at the utmost not to exceed 50,000.

The Edinburgh Apple Market.

Sir,—For your guidance we herewith beg to advise you market prices for apples. In the first place we are pleased to state that our market has taken a decided turn for the better. The bulk of the wasty apples have now been cleared out and anything good arriving from now is sure to make remunerative prices. We had a few fresh landed apples sold yesterday. Condition of them was fair, although the quality left much to be desired, being very poor and showing considerable signs of frost, especially the Greenings, which had many black apples in them, and of a soft spongy feeling.

Golden Russets, best realized from 11/ to 12/ brl.; do., very small, 10/ to 11/; Baldwins, 11/ to 12/; Greenings, very poor quality indeed, 8/ to 9/; Roxboro' Russets, 11/ to 12/; Spitzenburgs, 11/6 to 12/; Ben Davis, 10/6 to 11/6; Canada Reds, 10/6 to 12/.

Spies, not any on the market; but really sound fresh packed Spies would have realized about 11/ to 14/, as they are now much wanted.

We also expect that prices will advance other 2/ next week, and it will not surprise us to see apples going for the next two or three weeks at from 14/ to 16/, probably more for anything fine.

Of course all apples arriving now will have to be fresh packed when shipped, as any old packed apples will simply arrive dead rotten, and it is great folly on the part of shippers to send such apples as have been arriving lately. They appear to have been in the barrels for three or four months and the waste that takes place while they are lying about gets all burst with the fresh movement in transit. Hence apples get all wet and slack, which starts a fresh decay and the consequences are, when they land here, they are simply *muck*, especially Spies and Greenings. We have never seen the like of it before and we hope we shall never see it again. One lot of Spies we had, when they landed out the steamer, and previous to them being carted, we really thought they were in fair condition; but the cause of them not shaking was, that they went into a solid body, and the minute they were put on to the waggons and carted to the stores, they ran out all over the place, even the juice was running from the lorry on the way to the store, and when landed in the stores the juice of them went down below into another flat.

Any shipments you have to send to our care will now do well for the next five or six weeks. After that the high prices that will be realized between now and then will likely bring in again heavy shipments, when there will take place another glut; so beware of it. But prices will not be anything like as bad as they have been, that is, if they continue to come in good condition. It was the very bad condition that brought the market down and demoralized the demand for anything fair. Intending shippers should ship at once two or three shipments, then stop until further advice. We hope you may have some fresh packed now on the way. If so, you will be sure to make a big hit.

Yours faithfully,

James Lindsay & Son.

Our Book Table.

FARMING, published by the Bryant Press, Toronto, Canada, for only $1 a year, is a magazine well worthy the patronage of every Canadian farmer. It contains about 75 pages of the most valuable information for the progressive student of agriculture, and is full of fine half tone engravings, prepared at great expense. It is thoroughly up to date in every respect, and reflects great credit upon its able editor.

BROWN'S NURSERIES P.O., ONTARIO.—In the advertisement in our January Number, of Brown Brothers Co., we wish to correct a typographical error in stating that the nurseries of this Company were located at Hagersville, Ontario. It should have read Brown's Nurseries P.O, Ontario. This P.O. has recently been opened at their nurseries, and all letters to this Company should be addressed there. We make mention of this error so as not to confuse the patrons of this Company as to the location of its extensive nurseries in our Province. The Company's ad. appears again on back cover page.

CATALOGUES.

A. M. SMITH'S ANNUAL, 1897. Fruit and Ornamental trees, plants and vines, Dominion Nurseries, St. Catharines.

SPECIAL LIST FOR 1897, Bloomsdale Nurseries, Woodstock, Edwin Hersee, Prop.

STEELE BRIGGS SEED CO.'S, 1897, Toronto Ont.

HAMMOND'S SLUG SHOT AND ITS USES, 10th Edition, 20 pages, illustrated, free.

1897 TRADE PRICE LIST TO DEALERS. Slug Shot kills insects, etc., 4 pages.

JAMES J. H. GREGORY & SONS, Catalogue of Home Grown Seeds, Marblehead, Mass., 72 pages illustrated, free.

E. W. Reid's Nurseries, Bridgeport, Ohio. Everything for the fruit grower, 1897, 46 pages, illustrated, free.

A. G. HULL & SONS, Trees and Plants for successful planting, St. Catharines, Ont.

THE SILAS WILSON CO., Catalogue and Price List of leading new fruits, Atlantic, Iowa.

H. H. GROFF, Simcoe, Canada. Cannas, Gladioli, Clivias, 1897.

FRED. E YOUNG, Rochester, N.Y. Fruit, Ornamental Shrubs, Roses and Trees.

D. M. FERRY, Windsor, Ont. Seed Annual, 1897.

STORRS & HARRISON CO., Painesville, O. Seeds and Plants, 1897.

W. ALTEE BURPEE & CO., Phildelphia. Sweet Peas, up-to-date, 10 cts., a valuable pamphlet.

ONTARIO FRUIT GROWERS' ASSOCIATION.

Officers for 1897.

President, . W. E. WELLINGTON, Toronto. | *Vice-President*, . . . W. M. ORR, Fruitland.

Secretary, ... L. WOOLVERTON, Grimsby.

Directors:

HAROLD JONES, ... Maitland.	W. M. ORR, ... Fruitland.
R. B. WHYTE, ... Ottawa.	A. M. SMITH, ... St. Catharines.
GEO. NICOL, ... Cataraqui.	J. T. SCARFF, ... Woodstock.
W. BOULTER, ... Picton.	JOHN STEWART, ... Benmiller.
THOS. BEALL, ... Lindsay.	T. H. RACE, ... Mitchell.
R. L. HUGGARD, ... Whitby.	G. C. CASTON, ... Craighurst.

Auditors.

A. H. PETTIT, ... Grimsby. | GEORGE FISHER, ... Burlington.

SHIPPING FRUIT AT WINONA, ONT

THE
CANADIAN HORTICULTURIST.

VOL. XX. 1897. No. 3.

THE GRIMSBY AND WINONA FRUIT GROWERS.

THESE two sections are really one; the G. T. R. railway stations are scarcely five miles apart, and are in adjoining townships. Here the fruit industry was first stimulated into activity by such pioneers as A. M. Smith, and C. E. Woolverton, who began shipping strawberries and other fruits by express, about the year 1860.

In those days strawberries averaged 10 cents a quart for the season, grapes 10 cents a pound, apples $2 a barrel, and peaches $3 and $4 a bushel. The first blackberry plantation at Grimsby was of the old Lawton variety, and these averaged about 15 cents a quart. Those were the palmy days of fruit growing; yet, every one planted sparingly for fear of overstocking the markets. Between the years of 1860 and 1870 probably $1,000 a year would cover the total value of fruit shipped by express from Grimsby, while that of apples by freight would be covered by two or three times that sum. What a contrast with to-day, when the value of the fruit shipped from each of these shipping points is upwards of $100,000 per annum; while of apples the G. T. R. agent reports that about 18,000 bbls. have been shipped this season from Grimsby alone, and 6,000 from Winona.

Our frontispiece shows the Winona station just before the arrival of the fruit train, with the fruit packages piled up on the platform awaiting transportation, photograph was taken by Mr. Craig, and the plate first appeared in the report of the Committee on Agriculture of the House of Commons, and was loaned this journal by Mr. J. H. McLeod, Secretary of the Committee. A similar view might easily be made at Grimsby almost any day during the whole fruit season from July to October.

It seems a little strange that now, when prices are so low, the fruit growers are planting whole farms to fruits, while in those days of high prices a small garden plot was enough to satisfy them.

Among the prominent fruit growers of Grimsby and Winona, at the present time, we will mention the following, and others will be noticed in a future number:

Fig. 1062.—W. M. Orr's Fruit Farm, "Fruitland," near Winona.

Mr. E. J. Woolverton, Grimsby, is a well-known fruit grower, because of his connection with the Niagara District Fruit Growers' Stock Co., of which he is president. His orchard is a perfect picture, consisting of about sixty acres of the choicest fruit land, in the very best state of cultivation. He has a ten-acre orchard of Baldwin apple trees, about thirty years planted, every one a beauty. They had never given a full crop, but this year they were loaded with prime fruit. But they ripened two weeks earlier than usual and two-thirds fell to the ground before they could be harvested. He shipped about 1,900 bls., but like many others, received from the net proceeds scarcely his actual expenses. Is it any wonder that he has decided to dig out a large number of these fine trees and plant some more profitable fruit?

FIG. 1063.—MR. E. J. WOOLVERTON.

He has a very large vineyard of Niagara, Pocklington, and Rogers grapes, which yield abundantly, and one of the finest blocks of Duchess pears in the whole district These fine trees were his pride for some years, owing to their rapid and vigorous growth, until the blight sadly disfigured them. Notwithstanding the discouragements Mr. Woolverton still has confidence in the future of fruit growing, and has planted his whole farm with the various fruits. His farm adjoins that of the Secretary of the Ontario F.G.A., on the west, being separated by a lane leading to Lake Ontario.

FIG. 1064.—MR A. H. PETTIT.

Mr. A. H. Pettit, of Grimsby, whose fruit farm adjoins that of the writer on the east, was one of the first to plant a large peach orchard, chiefly of Early Crawford peaches; a large vineyard of Concord grapes, an orchard of 600 Baldwin apple trees; a plantation of Duchess pears, and other fruits. This original Crawford peach orchard was a great success, and only quite recently was renewed with young trees. The Baldwins gave him their first crop this year—the finest we ever saw—and brought the owner excellent prices from some of the inland markets of Great Britain.

Mr. M. Pettit, of Winona, a notice of whom has already appeared in this journal, is like Mr. A. H., one of our ex-presidents, has always made his vineyard his chief hobby. It is situated on rich, sandy loam, close under the mountain, the sediment from which constantly enriches. All the way to Collingwood and Thornbury this condition prevails, and those similarly situated all along the mountain base might well plant their

Fig. 1065.—Mr. Van Duzer's Fruit Farm Looking From the Mountain.

FIG. 1066.—MR. M. PETTIT.

land to fruit. His many varieties of grapes led to his being chosen experimenter in grapes. Mr. Pettit has also a large pear orchard, notably of Giffard and Bartlett, two of the most satisfactory of our summer pears.

FIG. 1067.—MR. W. M. ORR.

Mr. W. M. Orr, "Fruitland," is also well-known to our readers, some account of his life as a fruit grower, having appear- on p. 111, volume XIX, from which we re-produce the excellent view of his fruit farm. This is situated like Mr. Pettit's, just along the base of "the mountain," and therefore naturally favorably situated to produce the best of fruit. Mr. Orr is now Vice-President of our Association, a position of advancement which his merits well deserve.

Mr. Ira VanDuzer, of Winona, has for nineteen years been engaged in nursery and fruit growing, first in company with Mr. J. Wesley Smith, and latterly by himself. As the fruit of his industry

FIG. 1068.—MR. IRA VANDUZER.

he has recently completed a beautiful residence of which he has furnished a photograph. It is situated close along the side of the H. G. &. B. electric road, the platform of which is seen in front, and to the south, in the rear is a view of "The Mountain," near the base of which all the best orchards in this locality are situated. The next cut (Fig. 1070) shows a nearer view of this mountain, with a portion of Mr. VanDuzer's plum orchard in the foreground. In another view (Fig. 1071) is shown Mr. VanDuzer's fruit farm looking from "The Mountain." In the distance, to the north, is Lake Ontario, and the

stretch of land between is but a portion of that famous Niagara fruit district, along from Hamilton to Queenston, similarly situated. In the distance is a rear view of Mr. VanDuzer's house, while nearer, just below, the vineyard in the foregound, is his plum orchard of seven acres, containing about 1400 six year old trees. From this orchard Mr. VanDuzer harvested in 1896 an enormous crop, for such young trees to bear; the balance Lindley, Agawam, Worden Moore's Early, Niagara, etc. Then follows four or five acres of bearing peach trees. In addition to these there are twelve acres of currants and other fruits, and in all about 42 acres in nursery and fruit garden.

Mr. VanDuzer belongs to one of the earliest families in this locality, his grandfather, Mr. John VanDuzer, from Pennsylvania, settling nearly a century ago

FIG. 1069.—MR. VANDUZER'S RESIDENCE.

he gathered 6600 baskets of plums, which, notwithstanding the very low prices prevailing, he was able to place on orders at an average of about 35 cents a basket. The varieties were chiefly Reine Claude, Yellow Gage, Wasington, Imperial Gage, Gueü, Pond's Seedling, Coe's Golden Drop, and Lombard.

Next below the plums is a vineyard of five acres, nearly one half Concord and on a farm at the top of the mountain, near his present home.

Figure 1071 shows another somewhat similar view at Grimsby; our photographer's camera was placed on the mountain side, and looked down upon a vineyard close at hand in full leaf, and just beyond is seen a fine vigorous young plum orchard, while to the right is a healthy, well-grown peach orchard. These beautiful grounds are in excellent

cultivation, on the very choicest land, close along the limits of Grimsby Village and are valued at $400 per acre by the owner, Mr. Hugh Anderson. This gentleman's house is on the extreme left of the picture, along the highway leading from the village to the park. The large building about the middle is Mr. B. R. Nelles' Canning Factory, and in the distance, the sky and the waters of Lake Ontario seem to unite.

(To be Continued.)

FIG. 1070.—SKETCH OF MOUNTAIN, MR. VAN DUZER'S PLUM ORCHARD IN THE FOREGROUND.

NOVA SCOTIA FRUIT GROWERS.

THIS old and respectable Association held its thirty-third Annual Meeting in the College Hall at Wolfville, N.S., on the 20th of January. A small but thoroughly representative assembly was present. The meeting was called to order shortly after 2.30 by President Bigelow, who, after calling on Rev. A. Martell for prayer, delivered his annual address, from which we cull the following paragraphs.

Ladies and Gentlemen,—I have the onor of again presenting to you my annual report, and have to record that for the first time in the history of this Association, owing to an unusually abundant fruit crop throughout this continent, and a consequent overstock in all our fruit markets, the fruit industry has not been as remunerative as usual. From the most reliable information obtainable, I report the apple crop of Nova Scotia this year at 500,000 barrels. The crop in Ontario and Quebec is reported to be 3,000,000 barrels, or more than double of any previous year for Canada. The United States Government returns

put their apple crop at 60,000,000 barrels. We have shipped already 230,000 barrels, principally to London, there to be met with enormous consignments from United States and Ontario, amounting to 2,300,000 barrels, shipped to England, which has so overstocked that great market that prices have returned to the grower an average of from 75 cents to $1.00 per barrel. Owing to the above cause, rendered more unprofitable by the exorbitant freight rates and charges by the subsidised lines of steamers running between Halifax and London, the fruit grower has practically been growing fruit this year to enrich the carriers and agents. We have paid the carriers already over $200,000 in freight, and received about $100,000 to cover cost of growing, barrels, picking, etc., which results in a loss to us.

Although this extreme over-production may not occur again for some time, I think the time has come when we must base our calculations for apple crops at not over one dollar per barrel average, and at this price with reasonable freight rates, I claim that this can be made the most profitable farm industry in Nova Scotia, and as compared with the low prices likely to continue for all food products, this must be considered an equitable price, and all my previous calculations for apple production in Nova Scotia have been based at $1.00 per barrel.

FIG. 1071.—

The promoters of the Halifax cold storage warehouse, having failed so far in securing the required capital, fruit growers as well as all producers of perishable fruit products are deprived of the advantage of any cold storage in this Province.

Amid the discouragement occasioned by the unremunerative price obtained for that portion of our crop already marketed, we have the cheering prospect of better prices for the large quantity of superior fruit still on hand, and with a good market in February and March, we may yet make a paying average on the year's fruit crop.

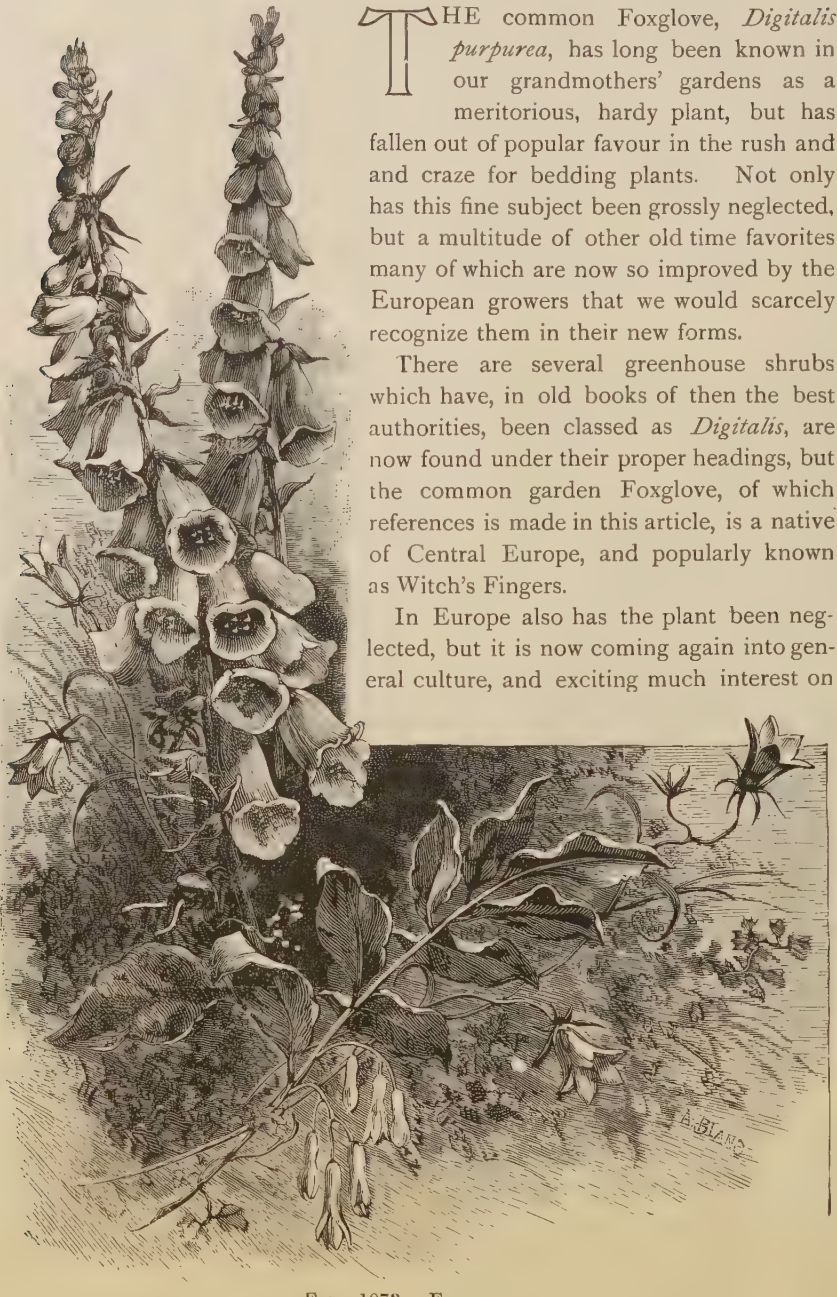
Dr. Chipman, of Grand Pre, spoke in favor of the grant for the foundation and support of experimental fruit stations. In agriculture, as in the learned professions, education was necessary, and he thought that the horticultural school at Wolfville should be supplemented by such a station, and moved the following resolution :

Whereas this Association has failed to obtain annual grant of $2,000 for establishment and support of an experimental fruit station from both the late and present government, let it be resolved that this Association invite the co-operation of the Ontario F. G. A. and all agricultural and horticultural societies in Canada, to urge the federal government to adopt a more just and liberal policy toward farmers and fruit growers by establishing the fruit station requested.

FIG. 1072.—GRIMSBY VILLAGE PROPER—SEEN FROM THE MOUNTAIN.

This was seconded by Henry Shaw, of Berwick. Dr. Reid, of Halifax, spoke in favor, saying that a farmer needed a more liberal education than any other profession. The resolution was carried.

THE FOXGLOVE AS A BORDER PLANT.



THE common Foxglove, *Digitalis purpurea*, has long been known in our grandmothers' gardens as a meritorious, hardy plant, but has fallen out of popular favour in the rush and and craze for bedding plants. Not only has this fine subject been grossly neglected, but a multitude of other old time favorites many of which are now so improved by the European growers that we would scarcely recognize them in their new forms.

There are several greenhouse shrubs which have, in old books of then the best authorities, been classed as *Digitalis*, are now found under their proper headings, but the common garden Foxglove, of which references is made in this article, is a native of Central Europe, and popularly known as Witch's Fingers.

In Europe also has the plant been neglected, but it is now coming again into general culture, and exciting much interest on account of the magnificent new forms which have developed, in the hands of those making a specialty of the plant, showing that it is not an exception to the ordinary in plants when given liberal cultivation and careful, intelligent selec-

FIG. 1073—.FOXGLOVE.

tion. In the common foxglove we really did not have enough range of color to warrant an extensive planting, and it may be due to this that the plant has been allowed to drop into the background, but now varieties appear having the recommendations of freedom of flowering, robust growth, and individual blooms of great substance, bold form, and wide range of beautiful colors and shades. One form that is always admired, either on the plant or cut, is the pure white with purple sprays on the lower portion of the bell-shaped bloom. So great has been the improvement in size and shape of the blooms that they compare very favorably with the improved Gloxinias, which they considerably resemble in this respect. For the present perfection of the Foxglove, we thank the French nurserymen for their untiring efforts in selecting and hybridizing until perfection be reached.

The best use, no doubt, to which the Foxglove may be placed is in the border, as we often see the Hollyhock now employed, with evergreens as a background. A bold clump thus placed and grown in greatest health, gives us a change and one which will be greatly admired.

Generally speaking, such tall growing things are best kept at a distance, though well arranged clumps may be used with great effect in a conspicuous place, pretty well forward occasionally; but it is necessary to give the matter of such a location considerable study, as it will mar one's grounds if not properly placed.

One great advantage of the Foxglove is that seedlings come up of their own accord in countless numbers, where all the flowers are not cut, so that it is only necessary to do the thinning out and transplanting in order to keep up the supply. However, there is one objection, that is, the losing of many of the finest kinds, as one cannot tell what the seedlings will produce unless grown in separate clumps of single colors.

The wild garden and our parks afford excellent opportunities for introducing the Foxglove, and when once established, one need not fear of its becoming much crowded out by the other subjects. While its beauty and appearance are so out of the ordinary growth, its time of flowering will be eagerly looked for each season when once the finer introductions become known.

A package of mixed seeds of the latest hybrids may be had 50 cents of some of the larger seed houses, and will give nearly all of the desirable varieties. Sown first in a pan or box, and afterward transplanted to 18 inches apart, they give a fine display.

The best soil is a loose loam, thoroughly enriched and well drained.

HARRISII AND LONGIFLORUM LILIES Can be potted in six or seven inch pots (top of bulb near top of soil) at any time after having a dormant period of a few months. Water sparingly until ball fills with roots and top growth is well established, then they will need more water; never let any lily in active growth get wholly dry. After blooming, dry off, keep in cool, dry position without disturbing the bulb until it is again fit to repot, when shake out of old soil and pot as above.

DUCHESS AND TYSON PEARS.

WHEN dwarf pears are spoken of, the Duchess is always first in mind, and it is widely planted in our Province. It is of French origin ; and in Canada it ripens early, in October. Its immense size, the excellent quality of the flesh, and the productiveness of the tree, have well combined to make it the dwarf variety for market purposes with fruit growers in Southern Ontario Some have planted it by the hundred in solid blocks expecting to reap rich returns, and until within two or three years past all expectations seemed to be justified ; but we have been disappointed, for the price for Duchess pears, as well as for all other fruits, has been unusually low. Formerly 75 cents was the ordinary price for 1½ peck basket of these pears, but now 25 to 40 cents seems to rule

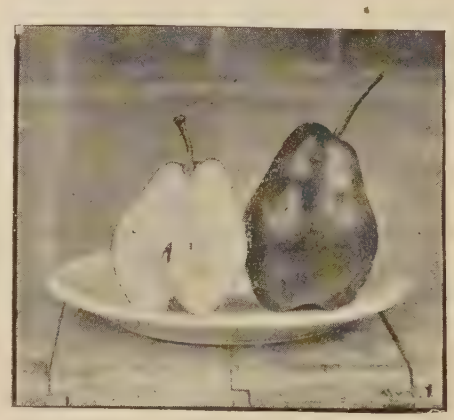


FIG. 1075 —DUCHESS PEAR.

FIG. 1074.—DWARF PEAR TREE.

What is the remedy? First plant other varieties near for cross fertilization of the blossom. Second, aim to grow only the the large, fine sized samples. No pear is more uninviting than a badly grown Duchess, knotty from curculio stings, undersized and colorless. Cultivation and manuring must be liberal, but that is not enough. The grower must thin his fruit well, leaving only the best to mature ; and he must prune properly. Very few of our growers take the trouble to prune their dwarf pear trees after any definite plan. The shape should be pyramidal, as shown in the accompanying illustration, in which the tree is bush form, the lower limbs quite near the ground, and the others short-

ened in to form a pyramid toward the top. The dwarf pear needs very close cutting back every spring, and if one-half to two-thirds of all young shoots be cut off at that time it is not too much. Our English friends understand this art of cutting back to perfection, and their trees are models to us in this regard.

FIG. 1076.—TYSON PEAR.

As a rule the dwarf pear is rather intended for the garden of the amateur than for the commercial orchard; it seldom lives more than twenty years and it dies about the age at which a standard is reaching its best days.

The Tyson pear tree on the other hand is almost always grown as a standard. We have some immense trees of this variety at "Maplehurst," some thirty years planted, and they exceed others of the same age in size and vigor, not even excepting the Buffam. It has the merit of never suffering from blight, so far as we are acquainted with it, it is also a very healthy grower, but rather late in bearing fruit. The fruit is medium size, good quality, but not very attractive in appearance, and therefore it brings a very ordinary price in the market. It ripens about the 1st of September. The tree originated in Pennsylvania.

NEW PORTABLE STEP LADDER.

EVERY new patent that helps to lighten labor, and facilitate the profitable pursuit of any enterprise, deserves encouragement, and, therefore, we do not hesitate to give place to an engraving showing this ladder as it appears when set up. Mr. Harvey Bowman, of Forgy, Ohio, is the inventor, and E. F. Landis, Model City, N. Y., the introducer of it, and it has been recently patented in both the United States and Canada. We find the ladder very easy to handle, and it can be wheeled with ease from place to place, being little heavier than an ordinary wheel-barrow. It is always in shape, and one can carry along the half filled basket from tree to tree, thus saving much time. The ladder is strongly built, the wheels are of malleable iron, and there appears nothing to go out of order.

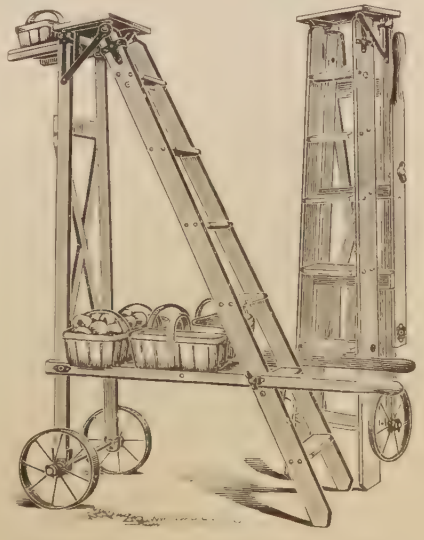


FIG. 1077.—PORTABLE STEP LADDER.

FRAMES FOR HOT-BEDS.

AS stated recently, the time is near for beginning hot-bed work, and as the "frame" must first be prepared it may be as well perhaps to explain how it is made. Common boards and a sash will answer all purposes. Any one with a square, saw and hammer, can construct it for himself. The frame may be from one to four sash in length, the latter being about what can be made from 14 ft boards. The most suitable width to use without waste is 20 inches; allow two for the back of the frame making it 20 inches high, which gives sufficient pitch to the roof to shed rain and collect the rays of the sun. Purchase the sash ready-made from the manufacturers, having it 6 ft long, 3 feet wide, and ½ thick. To make a four sash frame then, we will want four 10 inch boards 14 feet long, one of which must be cut in two equal parts to form the end pieces. Besides this, to secure a strong frame it is better to have at each corner a piece of 2x4 scantling, to which the boards are nailed. Let the end boards project 2 inches above the side pieces to hold the sash in place. Then fasten a strip 3 inches wide and 1 inch thick to each side and to the upper end on a level with the top and bottom boards. This forms a slide upon which the sash rests. Thus we have a homely frame ready for use.

Pits for hot-beds are made by taking out the soil to a certain depth and walling up the sides with boards or bricks. On top of the wall, place a wooden plate upon which the sash is to slide. The advantages of a pit are manifold. In the first place filled with manure in the spring it forms the hot-bed. Afterward when the manure is taken out it is a capital place to "summer over" many plants which do not do well exposed to hot, dry winds. Then in the fall it is just the place to grow chrysanthemums, and all winter with proper protection many half-hardy plants can be nicely kept in it. Tough prairie sod may be used for the sides with good effect, provided the land is low and the pit liable to collect water. In the engravings are still other styles of frames, which for certain purposes will be found very useful. For example, the upper one shows a span shape; that is, it has sash slanting each way and hinged at the top. Such a minature greenhouse, for summer use, will be found convenient for growing Chinese primroses, cinerarias, calceolarias, eyclamen and similar plants, even azaleas, provided there is height enough, will do finely. In the lower right hand corner is a very modest affair and just the thing to construct for the children's garden. With it they may go through the performances of their elders, and thus find innocent employment, and cultivate a love for flowers and gardening.—Orange Judd Farmer.

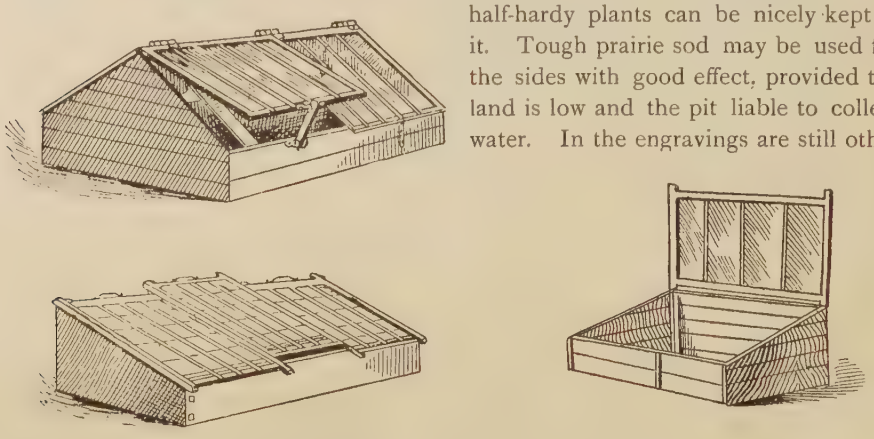


FIG. 1078.—HOT-BED FRAMES.

THE SAN JOSE SCALE INSECT.

WE are glad that the Niagara District fruit growers are taking active steps to prevent the introduction of this terrible pest into Ontario orchards. It is well known in California as the most destructive insect pest of deciduous trees, and has caused the growers there very great pecuniary loss.

FIG. 1079.—AN ADULT FEMALE.

During the last few years this scale has been spreading rapidly throughout the State of New Jersey, whither it was brought from California, on plum trees; and from Idaho, on pear trees. During the last year or two, it has even made its way into New York State, so that it is time we were alarmed. Our trees and plants come so largely from New York State nurserymen, that we see no way of averting the evil without wholesale measures. The insect is so tiny that it might easily escape inspection at the border, and total prohibition of importation for a time seems about the only sure means of preventing its introduction.

It belongs to the same group of insects with the oyster scale bark louse, but differs in form, being perfectly round. It is flat, pressed close to the bark, which it resembles in color. It is so small that it easily escapes the natural eyesight, and when full grown is only about 1/8th of an inch in diameter. It infests the twigs, the leaves, and even the fruit, and when very abundant the latter is utterly ruined by it. It is especially injurious to the Bartlett pear the fruit of which is rendered unsalable by it; and as this is one of our most valuable varieties for export, and the one most widely planted, we fruit growers should be wide awake to the danger.

Figure 1081 shows a Bartlett pear only slightly affected with this scale; while Fig. 1080 shows an adult female,

FIG.—1080.—SAN JOSE SCALE; *a*, pear moderately infested; *b*, female scale enlarged.

with young, greatly magnified, and at (*d*) the anal fringe, still more enlarged. The little circle at the right shows the real size. The mother louse acts as a shield to protect the young during the winter

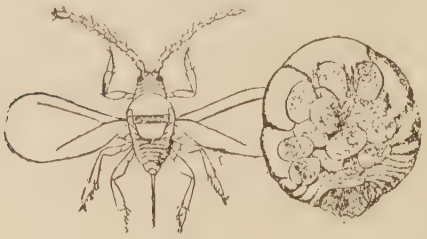


Fig. 1081.

season, and so thoroughly does she accomplish this that the young are safe from any applications until they emerge in early spring, at which time they can scarcely be seen without a microscope.

Fig. 1082 shows the same, and to the left a male adult, greatly enlarged; and Fig. 1083 an infested branch. These cuts will serve to identify this scale, for any one who has even a good hand microscope.

The best remedy appears to be kerosene emulsion faithfully applied in the month of May or June, at the time when the young have come out from under the old mother scale.

In New Jersey it has been found to infest the currant bushes and the quince trees, in addition to the pear and plum, above mentioned. Indeed, where abundant, there is scarcely any plant or forest tree which is exempt. Once get it in Canada, and millions of dollars would not eradicate it, nor would millions equal the loss to our fruit growers. How far north it will live we do not yet know, but we do not wish to experiment with it enough to settle that question.

The writer attended the meeting of the Lincoln and Welland fruit growers at St. Catharines, on Saturday, where a strong resolution was passed advocating either that all importations of fruit trees and plants from the U. S. be prohibited for a time, or else that all trees for importation be subjected to the most strict quarantine, and not permitted to cross the lines unless the sworn certificate of an expert entomologist can be first secured by the shippers, at his own expense, that the stock has been thoroughly examined, and proved to be free from this scale. We would advise farmers' institutes and other farmers' gatherings throughout the land to pass similar resolutions, and submit the same to the Dept. of Agriculture as speedily as possible.

The following is a copy of the resolution passed at the meeting of Fruit Growers at St. Catharines, and which is approved of by us :—

Fig. 1082.—An Infested Branch.

"*Whereas* authentic information has been received by this Association that the San Jose scale has made its appearance in the orchards and nurseries in the adjoining states of the Union, thereby seriously menacing the fruit growing interest of the Dominion of Canada.

"Be it, therefore, resolved, that this Association respectfully memoralize the Dominion Government to take the necessary steps to prohibit all importation of fruit of kinds known to be infested, and of all fruit trees and currant bushes until such evidence is furnished as shall satisfy an expert that they are free from the San Jose scale.

"And, further, that the Government be memorialized to appoint an expert or experts to examine all such importations, with authority to have them re-shipped out of the country or destroyed, if found to be infected."

AUSTRALIA A GOOD MARKET FOR CANADIAN APPLES.

OUR readers will remember that in 1895 the Board of Control of our fruit experimental work forwarded one hundred and fifteen cases of Canadian apples to Sidney, N. S. W., via Vancouver. They reached their destination in December, and were looked after by Mr. J. S. Larke, Dominion agent there. Many of them were ruined in carriage, through the extreme heat of the tropics, but those which did arrive in good condition sold extremely well. Some cases of Cranberry Pippins bring about $3.75 per case of about one bushel.

During the past season a grower in Preston, Ont., forwarded a small shipment of nine cases for experiment, a part of which carried safely and sold for the splendid price of $4.30 per case! in a season when apples could scarcely be given away in our own markets.

We append Mr. Larke's report on these apples, which is really a portion of his report to the Minister of Agriculture for the Dominion.

APPLES.

I had been advised that a shipment of apples might be forwarded from Ontario as was done last year. If a large quantity were sent I deemed it advisable that they should be placed in cool storage, and placed gradually on the market only as fast as it could take them at good prices, and had arranged for securing the storage in case it were required. None came to my order, but two parcels were sent out by the last steamer. One of nine cases was sent to Mr. F. Winter, who sold those forwarded me last year. They were sent by friends as a gift rather than as a business venture; but Mr. Winter treated them as a regular consignment. They were a varied lot, consisting of Spys, Snow apples, Baldwins, Russets, and a few "Seek No Furthers." Three cases had been nicely assorted, but the other six had been more hurriedly got together and packed. They were wrapped half in Manilla wrapping paper, the balance in pieces of newspapers. They were shipped from Preston on the 21st of October, left Vancouver on the 10th of November, and arrived here on the evening of Dec. 4th. They were stowed below decks as was the case last year. The nine cases yielded six of good fruit and three of defective. The Snows carried better than any other variety, there being but thirty-seven defective apples—eleven decayed and twenty-six with some spots—in two hundred and sixty-six apples. The Northern Spys were in the worst condition, and decayed more rapidly after being picked over. In order to make full cases we had to mix the varieties, and sell as quickly as possible. Five cases he sold at 17/6 per case, a sixth of equal value he retained or gave to friends. The results were as follows:—

6 Cases @ 17/6	£5 5 0	
3 Cases @ 1/	3 0	
		£5 8 0

EXPENDITURE.

Freight @ 4/1 per case	£1 16 9	
Wharfage	9	
Cartage	8 0	
Picking Over	5 0	
Commission	7 6	
		£2 18 0
Balance		£2 10 0

This netted the Canadian shipper $1.35 per case in Preston. The expenses were higher than they would have been in a commercial shipment. The cartage would have been 1/6

nstead of 8/o. In such case the net yield to the shipper would have been $1.55 per bushel. Five dollars were offered for the Snows mixed with the other varieties, and probably eighteen shillings could have been got for the Baldwins. A consignment of Snow apples arriving in as good condition as did these, would have netted the Canadian shipper $2.65 per bushel case.

The second was a larger consignment sent to Mr. Duffy, a successful commission man. A statement of its financial result cannot be yet given, but it will be an unfavorable one. In the first place, it appears it should have been shipped a month earlier, but was delayed by the strike on the C.P.R. They were in such condition when shipped that they had to be picked over on the wharf. Though provision had been made for ventilating the cases, this was neutralized by lining the cases with paper and failure to put slats on the cases. The apples were not a selected lot, some being very good and properly wrapped and others being not so good, nor properly assorted. It is no marvel that they arrived in a very bad condition, and it is probable that not one-third will be really fairly good fruit. Mr. Duffy's opinion is that if they had arrived in fairly good condition a month ago, he could have got from sixteen to twenty shillings per case. He sold California apples at eighteen, not nearly so well flavored as these are. He thinks he will get fairly good prices for the marketable fruit in this lot. Medium sized fruit is worth two shillings per case more than the largest. The retailer does not care to ask more than fifty cents per dozen, though he gets proportionately higher for a single apple, hence he requires a considerable number in a case to net him the profit his business requires.

These shipments warrant the conclusion that if properly picked, cased and handled on rail and steamer, Canadian apples can be landed here in good condition. It is just as important to see that they reach Vancouver in good condition as it is to have them cared for on the sea voyage. California apples arrive in so good state that, in many cases, it is not necessary to pick them over.

If the proper varieties are sent at the present rates of freight, it would appear that Canadian apples, arriving here about the last of October, November and December, will bring better net prices than when sent to any other market. I have nothing to add to the recommendations made in my report on the shipment of last year. If followed, they will, I think, ensure a profitable export trade of some dimension.

J. S. LARKE.

Sidney, N. S. W.

BEGONIAS.

Start tubers in small pots in March, do not keep too warm or they will become leggy, 60 degrees is about right. When warm weather arrives turn them out of pots into a bed about one foot apart, place them where they will be shaded in the hottest part of the day and provide plenty of moisture after growth is well started. In autumn take up bulb, dry off, and place in sand in a dry cool place. If wanted for house or veranda culture plant exactly as above in small pots, but afterwards turn into 8-inch pots with good drainage. In autumn when foliage will have turned yellow, gradually withhold water until the soil is perfectly dry, then put pots in a dry place until following spring, when the earth can be shaken off well and it re-planted.—T. A. W., Napanee.

GRAPE CULTURE IN THE GREENHOUSE AS A PROFITABLE INDUSTRY.

Read to the members of Niagara Falls South Horticultural Society.

Mr. Chairman, Ladies and Gentlemen,

As you have desired of me a paper on something pertaining to Horticulture, I shall endeavor to give my experience in growing in-door or Foreign Grapes. In going through a rose house at Niagara Falls, my attention was drawn to the beautiful buds and flowers, and I thought to myself, could this branch of horticulture be profitable, after deducting the heavy expense in coal, material and labor? It is certain that people have a craze for beautiful flowers; some will buy to dress their table with, others their parlor, others to give to the sick, etc., and I have no doubt but that they have acted their part of drawing the observer nearer to the Creator of all good.

I knew one gentleman that would not eat his breakfast without first going out to cut some flowers for his table, and he had a particular fancy in dressing the butter with flowers, generally a flower for each member of the family.

Flowers are so beautiful, and costly at this season of the year, that only those with a fair income can buy such luxuries. The cry with the most of florists is dull times, no sales, etc., but still the florist's expenses are always the same — he must grow the material whether he can sell it or not—and because it is work that is pleasing to the eye, the florist has lots of opposition on every side of him; when he improves his place in the way of getting up expensive greenhouses, his neighbor says, there must be money in growing flowers, and his neighbor does likewise, until they are at loggerheads with one another; at least I cannot see how they can be otherwise. Now, to remedy this a little, I would propose that some should turn their attention to the growing of grapes in some of the best establishments. I think they can be grown along with the roses, in the same house, but better by themselves. Procure some cuttings from some foreign vines, such as the Black Hamburg, the Rose Chasselas, the White Frontignan and the Grizzly Frontignan; cut them to one eye cuttings, place them in sand, slightly covered, in a warm propagating house; when the plants are rooted, pot them into small pots and shift until they are into ten-inch pots. Grow along the roof of the propagating house, on a wire, and only leave one cane to each plant. In this way, if the house is suitable to their culture, and providing the vines are cared for in the proper way, in their full season's growth the canes ought to be about from 15 to 20 feet in length.

The next operation is to ripen off the canes, which have been growing during the most of the winter months, and after they are ripened off, they may be started when desired by the grower; after they get their final potting into 15-inch pots, into a rich compost such as you would use for growing roses in, in a rose house, and treat almost the same. After the vines get the final potting into the 15-inch pots, cut back the cane to 8, 10 or 12 feet, according to the strength of the cane; then take a 6-inch pot, take the end of the cane through the hole in the 6-inch pot from the outside, draw the cane through until the small pot is sitting on top of the large one, then fill this pot the same as the large one; then curl the canes

round stakes in the big pot to make the lower buds start, and your plants are ready to put into the forcing house, such a house as you would force roses successfully. Syringe the vines twice a day, morning and evening, until all the buds are started, then tie up to the roof as before. As soon as the fruit shows and you can determine the best bunches, rub off every one, branches and all, but 8, 10 or 12, according to the strength of the vine. There have been 14 bunches grown to a vine in an 8-inch pot, ½ lb. each. When the vine is in flower do not syringe; after flowering, when the fruit is set, treat again the same as the forced rose, until ripe, when you can cut the vine under the small pot, away from the large one. Place a few neat stakes into the small pot, tie the other vine round them, and you have the vine ready for the dining room table, in the pot—fruit, leaves and all.

Supposing you could now supply this fruit in the early spring months on New York market, would it not pay? I think so; and my neighbor could supply the roses to dress the table with; this way we would be helping one another in the good work.

Now to those that think the pots, etc., too much trouble and expense, I would suggest, after the canes are grown and ripened off, take a first-class rose house, such as Mr. Dunlop's in Toronto, as they are laid off in tiers of shelves or benches. The benches I would make about 12 or 15 inches deep, then plant the vines in them, about the time for planting the roses to force, and treat them as mentioned for pot culture above. And I may say here that, if possible, have a pipe running lengthwise with each of the benches, close up below them, as the vine will stand as high as 150 degrees at the root, and the fruit will be all the finer flavored for it.

I have grown the grape this way in Scotland and shipped the same to London, England, the weight to a bunch about ½ lb., which ought to bring the grower a handsome return. I have sold the in-door grape in Toronto at 75cts. per pound in the month of June. Now suppose you had them in the months of March or April, and I cannot see how they could not be had at this date.

I think I will try this mode of culture when we get the power from the Falls, and I will be able to heat with electricity, and then I hope to see the industry of grape culture, in-doors, as successfully carried out as the rose culture of to-day, and our markets as well stocked with the foreign grape as they are to day with apples.

I hope to see the above treated on by some one before long, and if I can give any more information that I have omitted, I will be most happy to do so.

I may say here, that the vines are only supposed to be fruited once, when they may be thrown on to the rubbish heap. Therefore it is necessary to be prepared with a fresh stock of young vines every year to take the place of the old ones, just as is done with chrysanthemums or roses. In fact, if the care is given the foreign grape such as is now given to the rose or chrysanthemum in such houses as Mr. Dunlop's and others in Toronto, there is no fear but that success will follow, and in particular, if grown on benches, like the rose.

Peruvian guano is a good stimulant for the vine; after the fruit is set, a handful to an ordinary can of water.

RODERICK CAMERON.

Niagara Falls, Ont.

GLORY OF THE SNOW.

FIG. 1083.—C. LUCILIAE

ONE of the handsomest early spring flowers that has been lately brought into cultivation is Chionodoxa Luciliae, or Lucilia's Chionodoxa. The genus gets its name from Chion, Snow and doxa, glory; a name given from its habit of flowering so early in the spring in its native habitats, almost before the snow has all melted away. The genus belongs to the lily family, and is a small one, having only three known varieties, viz., *P. C. cretica* (Cretan) which has white or pale blue flowers, and comes from the mountains of Crete.

C. nana (dwarf) with white or lilac flowers, also from Crete, and

C. Luciliae, which forms the subject of this sketch. The flowers of this beautiful variety are from 3 to 6 in number, sometimes more, growing on a stalk about six inches in height. The petals are deep blue at apex, shading off to pure white at the base: the leaves are narrow, linear and upright. This variety comes from Asia Minor, where it was introduced in 1877. It is quite hardy, and will succeed in an ordinary border, unless the soil is too wet or heavy. It blooms very early in the season, along with crocus and snowdrop, and in company with these in various color, makes a beautiful display upon the lawn. The bed should be composted of leaf mould and sand; and young bulbs, after planting, should be left to grow undisturbed for three or four years.

C. Luciliae also succeeds well in pots, if treated like the hyacinth, by keeping it in the dark until it makes good roots, and then bringing it to the light, and growing it very near the glass, without too much heat.

SOME GOOD HERBACEOUS PERENNIALS.—II.

(Continued from page 68.)

Asclepias tuberosa—Butterfly Weed.—There is nothing about this plant to recommend it except the flower, the stem and leaves are hairy and coarse looking, and it is not at all ornamental in habit, but it is well worthy a place in the border for the splendid and unique color of the flowers.

It is closely related to the common milkweed, the flower is about the same size and grows in the same style, but the color is a most intense and brilliant orange. It grows about 1½ to 2 feet high and is perfectly hardy, in bloom June and July. Thrives best in a dry and sunny place, grows wild in western Ontario in dry sandy or stoney fields.

Valeriana officinalis—Garden Heliotrope.—Gets its common name from the great similarity in perfume and outward appearance of the flower to the heliotrope, though not related to it in any way, and not at all like it in habit of growth.

A perfectly hardy perennial, not particular as to soil or location, will thrive anywhere, common in Old Country gardens, and well worth growing if only for the delicious perfume. Spreads rapidly, and easily is propagated by division in spring or fall; the root leaves about a foot long, are very much divided—botanically, pinnatisect—the flower stems about 3 feet high, sparingly leafy, terminated by a large flat cluster of small flowers, pale lavender pink outside and white inside, in season from first half of June to middle of July.

Campanula carpathica—Bellflower.—Of the many species of campanula in cultivation, one of the most satisfactory is *C. carpathica*, especially suitable for the front of the border, as it forms compact mats of very pretty foliage about 7 inches high, the leaves about 1½ inch long are ovate heart-shaped on long petioles; the flowering stems, leafy below, are numerous and branching, each branch terminated by a large broadly bell-shaped blue flower on naked peduncles, very convenient for cutting; flowers about 1½ inch across, in bloom from June to September.

C. c. pallida is a very pale blue variety.

C. c. alba is pure white.

Aquilegias — Columbines. — Of this very variable and beautiful genus we have a fine representative in our wild columbine, *A. Canadensis*—often called honeysuckle by children—which is well worthy of a place in the garden border; it succeeds best if not too much exposed to the sun. On its native hillsides, the finest clumps are found in partially shaded situations and in rather light soil. The handsome scarlet and yellow flowers are freely produced in May and June.

A. Vulgaris, the columbine of Old Country gardens, is a very variable species. A strong robust grower, with flowers in all shades of blue, purple, red and white, single and double. Thrives in any situation or soil. It is so very susceptible to cross-fertilization, that i is almost impossible to get it to come

true from seed, and fine varieties have to be increased by division of the roots.

A. chrysantha, from California, is one of our very finest hardy perennials; the yellow flowers are very large, about 2 inches across, with divergent spurs 2 to 3 inches long; they are held well above the leaves on long branching stems. In season from May to August.

A. cærulea is another long-spurred species from the Pacific Coast, with blue and white flowers; there are many hybrids between it and *chrysantha*, larger than their parents and in great variety of color.

Delphiniums—Larkspurs.—There are no plants better suited for a background to the garden border than the tall perennial larkspurs. Of these there is now an immense variety of hybrid forms, some dealers listing over 100 named varieties in white, pink, red, palest to deepest blue, lavender and yellow. They have quite supplanted the old specific forms, being larger in flower, closer and longer in the spikes, and finer in colors.

As it comes somewhat expensive to purchase a good collection of named varieties, most growers prefer to grow them from seed. If a package of the best seed is planted in May in rows, you will have all the plants you want to transplant to their permanent quarters the following spring; or better still, let them flower in the seed bed, then carefully select the finest specimens and you will soon have as good a collection as if you had bought the high-priced named sorts.

They vary much in height—from 2 to 6 feet—in length of spike, and season of bloom.

I had a constant succession last summer from early in July to end of October. If the spikes are cut off the early flowering sorts when the flowers open, they throw out new shoots that blossom later.

Aconitum Napellus—Monk's Hood.—The genus *Aconitum* is a very large one, no less than 63 species, besides many varieties, being described in Nicholson's Dictionary of Gardening, all flowering in terminal racemes and varying in color from white to deepest blue and purple. The best known and most widely cultivated species is *A. Napellus*, with deep blue flowers, and the variety bicolor with deep blue and white flowers, both grow from 4 to 6 feet high, and make good companions for the tall *Delphiniums* at the back of the border. The foliage resembles that of the *Delphiniums*, but the flowers are quite different in shape, and are produced in much greater profusion. They are very irregular in form, the upper sepal being much larger than the others and covering the rest of the flower like a monk's cowl or hood, hence the common name. They are perfectly hardy and will thrive anywhere, even under trees or in shade of fence or house, apparently requiring less sunlight than most other flowering plants.

The roots are extremely poisonous and should not be left lying about; though not at all like it, they have been mistaken for horseradish.

Œnothera Lamarckiana — Evening Primrose.—Or more correctly, *Œ. biennis*, variety *Lamarckiana*, a large-flowered form of our common wild Evening Primrose. Though generally sold as a perennial, it is really only a biennial, requiring annual planting of seed to secure flowering plants every year; once started, however, there is no trouble in getting new plants, as seed is produced in great abundance and new plants grow up all round the parent one. The first season the plant is a

rosette of long narrow leaves lying on the surface of the ground, from the centre of which the leafy branching flower-stalk emerges the following spring. When about 2 feet high, flower buds form in a dense cluster at the end of each branch; as the branch grows the centre buds are carried forward, leaving the outer one distributed along the stalk, two to four of which mature and open every evening. The flowers are a beautiful lemon yellow, broad bell-shape, about 2½ inches across, opening at sunset and remaining open till about 9 a.m. next day, or later if the morning is dull. The unfolding of the flowers each evening is a never-failing source of interest; during the day the calyx of the long bud splits lengthways in two or three places, showing the color of the corolla remaining attached at the top till sundown, when the splits extending to the top of the bud, the sepals reflex with a sudden snap and the flower slowly unrolls being fully opened in about a minute; the first ones open slowest, but as day, light fades away, they open more rapidly, till all are expanded. A well-grown plant is from 5 to 6 feet high, with side branches 2 feet long and is a grand sight when in full bloom.

The number of flowers produced by such a plant is very great. I had a clump of three plants that frequently had 150 flowers open at once. The season lasts for over three months—from July to October.

Ottawa. R. B. WHITE.

(*To be continued*)

THE WINDOW GARDEN.

AT this season of the year the plants in the window garden will, if they have been properly cared for during the earlier months, be making a vigorous growth. This growth should not be so rapid as to result in weakness later on, as it will be pretty sure to unless great care is exercised. All conditions will be favorable to the development of the plants, and a little unnecessary urging will lead to over-development, if that term is allowable. In other words, it is very easy to overdo the process of encouragement by mistaken kindness. In order to keep the plants from making too rapid a growth, the temperature of the room in which they are kept must be regulated to a nicety. Do not let it get above 70° during the warmest part of day theif you can prevent it. At night it can be allowed to go as low as 55° without injury to tender plants. See that an abundance of fresh air is admitted daily. Now that the plants are growing well, more air will be needed than when they were at a standstill. The importance of giving plants pure, fresh air in liberal quantities every day, is not sufficiently understood by amateur floriculturists. The lack of it accounts in a large degree for the frequent failures we come across in the window garden, where conditions, as ordinarily considered, seem favorable to the satisfactory culture of house plants. When the amateur florist understands that a regular supply of fresh air is as necessary to the healthly development of plants in the window as water is, we shall see better specimens there.

Care must be taken about the amount of water given. Only enough to meet the requirements of the plants should be furnished, but it should be borne in mind that plants, when actually growing, require a great deal more than when dormant, as most of them are during the early part of the season. At that time, too, we are likely to have but little sunshine, and that not strong; therefore the plants really need but little water. But as soon as growth begins, and the days lengthen and the sun strengthens, more must be given, or the plants will suffer. Watch the soil in the pots. When the surface becomes dry—and not before—give another supply, and let that be liberal enough to thoroughly saturate all the soil in the pot. It is not necessary that it be warm, but if procured from well or cistern, see that the chill is taken off, by allowing it to stand in the room where the plants are for half an hour before using. As soon as a plant begins to grow—and before as a general thing—the amateur florist is quite sure to want to help it along by applying a fertilizer of some kind. This is all right if done judiciously, but as a general thing sufficient care is not exercised in this respect. Too much food results in a forced, unhealthy growth, and the plant, instead of being benefited, is greatly injured, and often dies in consequence. Therefore use judgment in the application of any fertilizer. Let it be weak at first, and watch results. If the plant put out fine, well-colored foliage, and the branches are plump and vigorous, be content. Such a growth is better than one characterized by great overgrown leaves and slender, long-jointed branches. Some plants can stand more fertilizing than others, and some require more. Study the habits of your plants until you learn their peculiarities, as you do those of persons. These understood, you can give the individual treatment necessary without the uncertainty of results which comes from experimenting. Unless you do understand your plants, all your work among them will be largely experimental. This the florist who would be successful must avoid as far as possible. He must be sure of himself as well as of his plants, and this feeling of security can only come from intimate acquaintance with their individual peculiarities. Unless your plants are growing, do not give any stimulant. Plants in a dormant condition cannot make use of rich food. The unthinking amateur florist sees that his plants are not growing, and does not stop to find out why, but argues that the application of fertilizers increases growth in plants as a general thing, and acts on this belief, applying strong food to them. He expects to see them start into immediate growth, and is surprised when they seem to be languishing instead. If he goes to work to find out the whys and wherefores of floriculture, he will soon satisfy himself that applying manure to a plant that is trying to rest is a dangerous thing to do. Let the plant alone until it gives evidence of again being in working condition, as it will by beginning to grow. Then use your fertilizers, but use them with care and judgment always. It is as easy to overfeed a plant as to starve it, and just as harmful. — American Agriculturist.

THE GREENHOUSE.

ONE of the greatest causes of failure in the amateur conservatory, is the attempt to grow under one temperature those plants requiring hothouse, intermediate, and coolhouse conditions. Greenhouse or intermediate should have a night temperature of sixty degrees, and while five degrees lower at intervals, will do no harm, yet, if recurring too frequently, many plants will receive a check in consequence. We are also supposed to raise the temperature five or ten degrees in the daytime, but during the dark days of mid-winter this will produce weak growths, in danger of falling a prey to disease and insect pests. Strong, vigorous plants are the best remedy, or rather preventive for these evils, which to-day mark the success or failure of all florists and horticulturists, from the window garden to the most extensive acreage.

A sun temperature of eighty or even ninety degrees will do no harm, care being taken to water all plants requiring it in the morning, as the heat advances above the firing point.

Another cause of failure is the fact that amateurs do not know the varieties in many sections of plants offered by the trade, best suited to the conditions they are able to give, as there are palms, ferns, orchids, etc., that cannot be successfully grown under a less temperature than seventy degrees at night. My experience has been when selecting such varieties, that although opposite the name of each in my order list was the note, "If not suited to sixty degrees fire heat do not send," they always came. This was costly experience, to me in the loss of value, and to the plantsman in the loss of an enthusiastic client.

Advantage should be taken of all bright days to renew the supply of air by ventilation, always using care to avoid chilling the plants by cold draughts. Close the ventilators early to retain some of the sun heat, it is cheaper than fuel.

Some of the plants best suited for conservatory or intermediate treatment, are the palm, dracena, banana, ficus, yucca, grevillea, ferns, seliganella, calla, begonia, canna, cissus, aspidistra, croton, hibiscus, pandanus, tradescantia, azalea, heliotrope, stephanotis, vinca, rose, nasturtium, manettia, a few cypripediums and other orchids, never forgetting to add several species of the Platycerium or Stag's Horn fern, a parasite, which like true orchids can be easily grown on virgin cork, and never fails to interest even experienced visitors. In palms, Latania Borbonica and the Kentias, Belmoreana and Fosterana, will give best satisfaction. Cycas revoluta, kept on the dry side during the winter, is an attractive plant and useful in table decoration. Do not attempt to start the dormant stems as imported from Japan, unless a temperature of eighty degrees bottom heat, and seventy top can be given. I find it most interesting work forcing these in a compartment prepared for such work.

The following species of Platycerium are distinct in form and easily grown, alcicorne, Willincki, majus, Ethiopica and grande. Never allow the root to become perfectly dry, at the same time do not over water, as for all ferns moderate continuous moisture and good drainage must be given.

Musa Ensete and Cavendishi are the best bananas, the former makes a grand bedder in tropical decoration, and the latter will fruit by the time it is potted to a half barrel. During the spring and

summer the shady side of their stalks is a good place for the Platyceriums, making a most effective arrangement.

Cannas may be brought from the garden in clumps and bloomed during the bright days of early winter, then dried off until February or March, when if divided and repotted, will furnish their brilliant flowers until required for outdoor bedding; the foliage is always valuable for its tropical effect. If the canna has failed as a greenhouse bloomer, it is because this treatment has not been given, and that varieties have been used of close relationship to the species, which are not suitable for forcing. Light, heat, rich soil, and root moisture, are necessary for great success with the canna at all times, given these, no plant will more amply repay the attention and labor bestowed.

If ample root room is given to the Manettia vine it will prove a rampant grower, and give a mass of bloom all winter. The secret of growing nasturtiums to perfection is just contrary to Manettia, the roots must be confined, but in order to supply the necessary moisture when in blooming position, these must be allowed to grow through the drainage hole in the bottom of the pot, and ramble in the moist sand, covering the greenhouse bench. Liquid manure should be supplied to the pot twice each week during blooming. Under the above treatment the nastur tium can be grown from six to ten feet high, producing hundreds of blossoms at a time when flowers are scarce. Grown in the cool section it will not make as large plants, but this gives a succession for a few weeks later. I prefer growing from cuttings, which root easily in pure sand. These can be selected from the most beautiful varieties, in late summer. After rooting, plant in small pots, shift as growth advances until blooming size, say five or six inches is reached by early winter.

There are no more satisfactory plants than a few cypripediums, which are of easy culture potted high in Sphagnum moss well drained with fragments of broken pots and charcoal. The flowers often remain open for three months, and are very attractive. Insigne, Sedeni, longifolium, villosum and Harrisianum, should be the first selections for the amateur collection.

One of the greatest mistakes made by the owners of greenhouses, is the custom of emptying them for the summer months, as at this season they may be filled with bloom of the Tuberous Begonia and Gloxinia, two of the most beautiful flowers we have, and which can only be brought to perfection under glass. They should be started in early spring, and grown near the glass which must be whitewashed lightly, until the buds show color, they may then be moved to a cool and more shady position for blooming. The Begonia may be started in small pots and shifted as necessary, but the Gloxinia should be placed in the blooming pot at once, the diameter to be about two inches greater than that of the bulb. These plants can be easily grown from seed, if proper care is exercised during the early stages of their development.

There is one point in connection with greenhouse work, in fact potted plants wherever grown, that I cannot pass without comment, and that is the important operation of watering, for on this hangs the whole issue. No matter how perfect may be the building and appliances in all mechanical detail, no matter how skiifully and correctly the potting may be done, and no matter how much care may be exercised in firing and ventilation, the fate of all labor, expense, and attention, depends on how the watering is done. That I am not making too

much of an apparently simple operation may be seen by the following. A visitor to the greenhouse of one of the most successful florists in America, was surprised to find the proprietor engaged in watering. In reply to the suggestion that he might let one of the boys play with the water, he replied: "When he can do this, he knows it all." I am frequently asked how often a plant should be watered, and always reply: "There is only one rule for all plants, and that is when it is needed." The successful grower of pot plants must, after mastering the principle of watering, learn to apply it to the varying conditions and requirements of a mixed collection with intelligence.

But this is a question of too great possibilities to be combined with the subject under consideration

H. H. GROFF.

Simcoe, Ont.

CARE OF HANGING BASKETS IN WINDOWS

BE sure to see that suspended plants get enough water. Most persons complain that they "haven't much luck with hanging plants." In nine cases out of ten, the fault is their own. A plant suspended at the height of one's head above the floor is in a stratum of very warm air where evaporation will take place with great rapidity, and unless water is given frequently and in liberal quantities, the soil in pot or basket will be very dry before you know it.

FIG. 1084—HANGING BASKET.

The best plan I know of for keeping the soil in baskets evenly moist is this: Take a tin can and make a small hole in its bottom. Fill this with water and set it on top of the soil in the basket. By watching developments a little you can tell whether the hole in the can is too large, too small, or just the right size. It should be of a size to allow enough water to escape to keep the soil moist all the time. It is much easier to fill this can daily, or oftener if necessary, than it is to apply water to the surface of the soil and have enough soak into it to penetrate all parts of it. The foliage of the plant can be so arranged about the can as to effectually conceal it.

Our Affiliated Societies.

Advantages of an Affiliated Horticultural Society.

Sir,—Will you have the kindness to send me information as to the means of forming a Horticultural Society in this place, with particulars as to the advantages offered to such societies?

J. W. Gordon, *Brighton.*

The great advantage of an affiliated society is that it aims to give every member equal benefit. In the old plan the money was all spent in prizes for a few, and there was nothing left to carry out the other important provisions of the Act, viz: (1) Giving members horticultural reading; (2) distributing valuable seeds and plants among members; (3) holding lectures on horticultural subjects. Affiliated societies get all these from the Ontario Association, and in addition have money to supplement each of these good things.

Cupid Sweet Pea.

Sir,—I see in January number that the Cupid sweet pea is a failure. At our horticultural show last fall the Cupid sweet pea was exhibited, and of course admired, as it was new; but some one interested cut a bunch of the Herbaceous pea, and as it has no perfume, they were taken to a drug store and perfume put on to them, and was then named Cupid's Brother, and it was fun beyond a doubt to see every one take and smell this bunch and admire the Brother more than Cupid.

R. Cameron, *Gardener,*
Niagara Falls Park.

Desoronto.—Mr. D. McClew, Secretary Desoronto Horticultural Society, writes that the local paper, the Tribune, is devoting one column to the interests of the Society, and that in this column is published the papers read at the meetings of the Society, and also any special contributions from the members. The first paper contributed is given below on "The Carnation as a House Plant."

The Carnation as a House Plant.—Possibly of many kinds of plants the carnation is least fitted to be a room plant. Few things are so sensitive in regard to an abundance of light. Florists who raise carnations under glass always choose the brightest and best houses for them. Outside the lack of light there is no other trouble more than falls to any other plant. Seed may be sown under glass in the spring, or in the open ground, they will flower the second summer. Some will prove single and others semi-double. Young plants are perfectly hardy, but when old are injured in the winter. A succession of plants should be procured, either from seeds or from layers each year. Layering should be done in mid-summer; this is simply cutting a slit in a young shoot to obstruct the sap. Remove the earth a few inches in depth, and press down the branch so that the slit will open, and then cover with soil. Roots will push out where the cut was made, and thus a new plant will be formed. Carnations like a night temperature of 55 degrees. If wanted for winter blooming keep all flower shoots pinched off up to the middle of August; pot up first of September; do not use too large pots; shade and spray until established, then give all the sun you can and spray every sunny day. The carnation is the most magnificent of all the Dianthus family. Flowers large, beautiful and delightfully fragrant.

TOWN OF DURHAM HORTICULTURAL SOCIETY.—This is a new but most flourishing Society, which has already sent in over eighty names. On the evening of the 5th of February, a lecture was given this Society by Mr. A. McD. Allan, of Goderich, representing the Ontario Fruit Growers' Association. The Directors have issued a circular to their members, informing them that they are entitled to a certificate of membership with us, including our Journal, report, and plants; and also giving them a choice of the following which are distributed free by their own Society, viz.: 1st choice to include 28 bulbs, etc., as follows: 12 gladioli, 12 packets flower seeds, 2 cannas, 1 Tuberous begonia, 1 geranium: 2nd choice, 9 plants as follows; 3 coleus, 1 heliotrope, 1 Swainsonia, 1 Acharanthus, 1 Abutilon, 1 Gloxinia, 1 Sanseveria Zealandica: 3rd choice, 8 plants as follows: 2 Downing gooseberry, 4 Red Cherry currants, 2 Columbian raspberry. In addition to this the intention is to distribute hyacinth bulbs next autumn to all members, without farther cost, and to hold a horticultural exhibition during or about the first week of September next. The circular is signed by

WM. GORSLINE, *Secretary.*

GRIMSBY.—Our Society numbers fifty-six members. In addition to the plant distribution by the Ontario Society, we intend giving each member five potted chrysanthemum plants of different colors, which are now being grown by a florist for us. He will advance them to five inch pots, and deliver them May 1st; we feel sure we can then have them in bloom for our show in November. We are advertising a lecture by Dr. Beadle on the second of March.

E. H. READ, *Secretary.*

COBOURG HORTICULTURAL SOCIETY.—A numerously attended meeting of Cobourg citizens who take delight in the culture of fruits and flowers, was held in the town council chamber on Wednesday evening, February 10th, at 8 o'clock. The chair was ably filled by Mayor Hayden, who stated that the object of the meeting was to consider the advisability of organizing a Horticultural Society in this town. The chairman pointed out the special advantages to be derived from such a society in our midst and explained that the members, as a body, would be affiliated with the Ontario Fruit Growers' Association, and entitled to a grant of $140 annually from the Ontario Government. Each member would receive the Horticultural magazine, with the choice of a valuable premium, and additional plants or bulbs from the local Society. Besides this, free lectures will be delivered to the society from time to time by the best garden and orchard experts to be found in the Province. Mr. John Fisher then moved, seconded by Mr. D. H. Minaker, that this meeting organize a society, to be called the Cobourg Horticultural Society, according to the provision of the Ontario statutes regulating such societies. This motion met with the approval of the audience and was unanimously carried. The following officers were then elected:—President, Mayor Hayden; 1st Vice-President, John Fisher, Esq.; 2nd Vice-President, Col. Skill; Secretary, Major Snelgrove; Treasurer, J. G. Orr, Esq.; Directors: Prof. L. E. Horning, Messrs. A. R. Hargraft, E. Denton, E. J. Baker, Mrs. J. W. Kerr, and Mrs. Hayden. The election of three additional directors was deferred until the next meeting of the society, which will be held about the middle of February. Already fifty names have been enrolled as members.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 4,000 copies per month.

Notes and Comments.

VICTORIA, NOT FAY.—Mr. Porter says that page 39 where it reads "dug up Fays," he meant to say "dug up the Victoria currant."

PHOTOGRAPHS.—We renew our request for interesting photographs of new fruits, flowers, shrubs, trees, gardens, homes, walks, etc., and notes concerning them. We do not agree to engrave everything sent in, but the more deserving will be selected to appear in the Journal from time to time.

ANOTHER FREAK.—We have just received from Mr. John Bain, Fergus, an apple grown at Harriston by Mr. Thos. Grills, which is another instance of cross-fertilization showing results in the fruit the same year. The apple is Canada Red, and one quarter is distinctly marked with some distinct variety The quarter thus fertilized is larger than another part of the apple.

OUR FEBRUARY number brings still more numerous compliments than the January number. The Executive Committee appreciate the kind words, but it costs money and hard work to make these improvements, and we expect to see a vigorous push for new subscriptions all along the line. Won't every reader exert himself a little in our interests, for our readers will receive the benefits if we have larger patronage. We published 5,000 copies of February No. The mailing list alone requires nearly 4,000.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given.

OUR ENLARGED JOURNAL.—We are receiving kind words of approval over the improvement in this Journal from many sources. We quote the following from the Daily Globe: "THE CANADIAN HORTICULTURIST appears in an enlarged and improved form with the January issue, and contains several unusually interesting features. A special article dealing with the meeting of the Ontario Fruit Growers' Association at

Kingston is well prepared and suitably illustrated with half-tones of Kingston, views and photos of the leading speakers and others, also several of Kingston's public buildings, and a view of the city. The front of the issue contains a handsome colored plate of a pink rhododendron. The number is well filled with interesting matter relating to fruits, flowers and forestry, and is, perhaps, the best issue of the kind ever brought out in Canada."

THE NOVA SCOTIA APPLE BARREL.—We are in receipt of a letter from The Annapolis Mfg. Co., stating that the Nova Scotia fruit growers have adopted the following measurements for their apple barrel, and have decided to approach the Legislature, asking that these dimensions be the recognized standard of the Province, viz.: stave, 30 inches; distance between heads, 27 inches; diameter of head, 17 inches; diameter of barrel at bulge, 19 inches; making the distance 27 inches between heads instead of from croe to croe, as laid down by the Dominion statutes. This prevents the use of various thicknesses of heading by the cooper. The New York State and Michigan barrel is three inches shorter than the Canadian, the stave being only twenty-seven inches in length.

PROF. CRAIG, of the Experimental Farm, Ottawa, will visit Cobourg under the auspices of the Horticultural Society, and deliver a lecture in the Court Room on the evening of Friday, February 26, at 8 o'clock. The lecture will be illustrated by stereopticon views. Subject: "How to Beautify Home Grounds." There will be no charge for admission, and the public should avail themselves of the opportunity to hear this popular lecturer.

COLD STORAGE TRANSPORTATION FOR FRUIT.—The Department of Agriculture has decided to place a small experimental cold storage warehouse at Grimsby, instead of three houses at three points, for the cooling of fruit for export until placed on board the refrigerator cars. St. Catharines, Burlington, Winona and Grimsby were all claimants for this warehouse, but the interests of all are equally served wherever it is placed, providing the work is well done, and the English market for our tender fruits thoroughly tested. It is proposed to forward one or two cars each week during fruit season, and the growers at Grimsby have undertaken to furnish the fruit. If the experiment proves a success, they agree to take over the warehouse at the end of three years at its appraised value.

Should the enterprise prove successful, no doubt every fruit section will erect a warehouse for itself on the same plan as this one, which has been designed for the purpose at Ottawa.

Question Drawer.

An Iron Bolt in an Apple Tree.

911. Sir,—I have two large apple trees, split at the crotch about twelve inches. The big top was very heavily loaded. I put an iron bolt through the tree, and tightened it up. Will it injure the tree?

No, the bolt will not harm the tree or its fruit.

Ashes.

Reply by C. W. Young, Cornwall, to Question 905.

I think it would be a mistake to put much ashes, leached or unleached, on clay soil, as it would make it harder. On sand it is all right. Coal ashes are much better for clay, as they break it up. Old mortar, chips from an old wood yard are excellent. Such soil should be dug up very rough so as to get the action of the frost on it in the winter. That will soon mellow it down.

Blackberries Drying Up.

912. Sir,—Is it usual for the blackberry to dry up on the bushes or is it just on our limestone soil, that it does this?

W. J. McK., *Selby.*

With us at Grimsby, the blackberry does not dry up on the bushes, unless in extreme drouth. We have considerable lime in our soil also; but it is a deep, moist, well-drained sandy loam. On heavier soils, the blackberry does not succeed so well.

How to Treat Strawberry Runners.

913. Sir,—Should the runners be kept cut off strawberries the forepart of the first season after planting?

W. J. McK., *Selby.*

It is advisable to cut off all blossom buds, and all runners until about the first of August, on newly set plantations, after which each runner may be allowed to make about one plant.

Kieffer Pear.

914. Sir,—Would the Kieffer, be a good stock for top-grafting other varieties, and is it a profitable variety itself?

W. J. McKim, *Selby.*

We have not tried top-grafting the Kieffer, but from its vigorous habit of growth, its healthy wood, and hardiness, we would judge the Kieffer would be a capital tree for top grafts.

Regarding the profit of growing the Kieffer, it is almost too soon to reply. So far, it is profitable, notwithstanding its poor quality. It may be kept well into December in ordinary conditions, and takes on a beautiful golden-yellow, and this with the red cheek it frequently possesses, makes it a very beautiful pear.

It is thought by some that it will be a valuable variety for export, being a good keeper, and not easily susceptible to bruises.

Planting Strawberries.

915. Sir,—When is the best time to plant strawberries, and which are the best varieties for this section, North Simcoe?

D. Bolder, *Collingwood.*

Plant in spring as soon as you get the plants; or if not quite ready when plants arrive you may heel them in carefully—packing the earth well about the roots, and so hold them till your ground is in thorough cultivation. Success with strawberries depend largely upon cultivation and manure.

Haverland, Bubach, Clyde and Greenville are excellent varieties. Usually the kinds that succeed with us in the south, do equally well in Simcoe ; for the snow protects them so well in northern sections.

Pollenizer for Northern Spy Apples.

916. SIR,—Please tell us what variety of apple would be best to furnish pollen for a Northern Spy orchard, and how many trees would it be necessary to graft in an orchard containing 9 dozen trees ?

MORLEY HAWKESWORTH,
Medina, Ont.

Reply by Mr. John Craig, Ottawa.

So far as I am aware it has not been satisfactorily proved that Northern Spy is partially or wholly self-sterile. It is, however, true—and this truth has been widely and thoroughly demonstrated by the observations of practical fruit growers—that Northern Spy, in common with the principal leading commercial varieties of apples, will bear fuller crops of fruit when the mixed system of planting is practiced. The truth of this assertion was well borne out last spring when visiting the apple growing section of Grand Island County, Vermont. In one orchard I saw large blocks of Greenings, Spys and Russets growing alongside of each other. In every instance the contiguous rows of Greenings and Russets, or Greenings and Spys, as the case might be, were much more heavily laden than were the rows of these varieties in the centre of each block, where they were probably not affected by other pollen than their own. In the case of Northern Spy, a fair proportion of any other variety, would be two rows of Northern Spy and as in the case of strawberries one row of the pollenizer. Among varieties which blossomed last year at or nearly with Northern Spy were : Alexander, Maidens Blush, Ribston Pippin, Roxbury Russet and Talman Sweet.

Ventilation and Heating of Greenhouse.

917. SIR, — 1. Ventilation. How best arranged, the conservatory being a lean-to, eight feet wide and thirteen feet long, brick foundation and wood up to the benches, and on south-east side of my house.

2. Heating. I wish to use hot water, to be connected with my wood furnace which heats the house, having a firebox 20 inches square and four feet long. (*a*) Will four rows of two inch pipe around the conservatory, two sides and one end, give sufficient radiating surface, the glass being about 150 square feet ? (*b*) How many lengths of two inch pipe should pass through the furnace firebox from end to end above the fire to sufficiently heat the water ? (*c*) Should there be any difficulty in heating as contemplated, the furnace being within ten feet from where the pipes would enter the conservatory, and being one which holds the fire all night ?

C. E. GERMAN, *Strathroy.*

Reply by Prof. L. R. Taft, Michigan Agricultural College.

1. Ventilation can be secured by means of two sash, each four or five feet long, running lengthwise of the roof at the ridge. They can be hinged at the upper edge and raised and lowered by hand, using skylight lifters.

2. (*a*) Four would be ample and three would probably answer if the coil is at least thirty feet long, provided the temperature does not fall below 25 degrees. (*b*) Four or five lengths three or four feet long should supply sufficient fire surface. (*c*) If properly arranged the pipes should work all right, as the entire circuit will not be more than fifty or sixty feet.

How to Kill Poplar Suckers.

918. SIR,—I notice in the January number of the CANADIAN HORTICULTURIST an enquiry as to how to destroy the vitality of "Poplar Roots." Knowing from experience

what a nuisance the popular suckers are, I hasten to give an answer. I had my ground covered with suckers after the trees had been cut down, I saw in some paper that if holes were bored in the stumps and the holes filled with coal oil it would kill the suckers. I tried it, boring holes with a three-quarter inch bit and filling with coal oil, every sucker, even two feet from stumps, were killed and ,o-day there is not one alive.

L. FAIRBANKS, *Whitby.*

Early Potato.—(*Questions 879, 881.*)

Reply by Walter Hick.

Regarding the "Early Potatoes," in question 879, October No., also 881, November No. CANADIAN HORTICULTURIST; I intended to have answered it with my experience. I have been experimenting for some years with both early and late varieties. I have found Early Puritan from Peter Henderson and Polaris from W. H. Maule, about the earliest and best croppers, but I believe they are the same, so now I don't keep them separate. The Burpee's Early I find a poor cropper and small, and no earlier. The Tonnocks I found last year was the earliest of all and a good crop. I have not grown Carman, as noted in question 881, or the Jersey Queen or Early Main, as stated by Mr. R. F. Closson on page 441. My land is a good dark loam.

Pruning Apple Trees.

919. SIR,—I have a small farm of about eight acres more or less in Wolfville, N.S., partly in apple orchard (oldish) and a part in a young plum orchard. I want to know when to prune apple trees for the best results.

G. N. BALLENTYNE,
North Attleboro', Mass.

Light pruning may be done at any time, but wounds cut in June, heal more rapidly than at any other time of year. If pruning is done regularly every year, no large limbs need ever be cut, and the work may be done just when is most convenient.

Lecturers to Horticultural Societies.

920. SIR,—Can you send me a list of lecturers available on Horticulture? I am instructed to arrange for three or four lectures during the season. Our first should be within three weeks.

C. H. ROBERTS, *Secretary*
Paris Hort. Soc.

We would recommend the following gentlemen, viz.:—John Craig, Horticulturist, Ottawa; Prof. H. L. Hutt, O. A. C., Guelph; Prof. J. H. Panton, O. A. C., Guelph; D. W. Beadle, 303 Crawford St., Toronto; Alex. McNeill, Windsor; R. B. Whyte, Ottawa; Mr. Webster, Florist, Hamilton; T. H. Race, Mitchell; Alex. McD. Allan, Goderich. We shall be glad to hear of other names, which we may add to this list.

Nothing will better serve to build up and strengthen our affiliated Societies than a course of lectures each winter. The Fruit Growers' Association of Ontario has decided upon the following gentlemen as representatives to lecture before the Societies:—Mr. John Craig, of Ottawa (kindness of Mr. Wm. Saunders, Director of Dominion Experimental Farm), to the nine affiliated Societies east of Toronto; Mr. D. W. Beadle, a prominent Horticulturist, to the ten Societies south and west of Toronto, and Mr. Alex. McNeill, of Windsor, to the nine Societies north and west of Toronto.

Fertilizer for Plums.

921. SIR,—When and how should I fertilize my plum trees?

G. N. B., *North Alleboro', Mass.*

Try the following commercial fertilizers for each tree: ½ to 1 lb. nitrate of soda; 3 to 6 lbs. dissolved rock or bone meal, and 9 to 18 lbs. of wood ashes, or 3½ to 7 lbs. kainit. This should be applied in the spring.

Fertilizer for the Apple.

922. SIR,—What fertilizers should I use for the apple? G. N. B.

The same as above for cherry, only about twice the quantity in each case.

The Algoma District.

923. SIR,—Would you or some of the members give me some idea of Algoma District as a fruit growing place?

D. N. ANDERSON,
Wyoming, Ont.

Raspberry Root Gall.

924. SIR,—Does the raspberry root gall affect the crop very much, when bad? I have been told it does not, and that all raspberry canes have it. A GRIMSBY SUBSCRIBER.

Hand Irrigation.

925. SIR,—Would an ordinary hand force pump be the best thing to irrigate a half-acre garden with? If so, how long would it take to pump enough water to soak that amount of land? A GRIMSBY SUBSCRIBER.

So far as our experience goes, watering a half acre of ground by hand force is an utter failure. The amount of water required to cover half an acre one inch deep is 450 barrels! A windmill pump might be made to serve a good purpose.

Open Letters.

Planting Grapes.

SIR,—I would like to give you my experience with planting out grapes in the fall of the year. I had my land in good condition, and in the fall of 1895 I set out 1000 Concord, 900 Worden, 300 Niagara, all 2-year old vines, and; I don't think I lost three out of the whole lot every vine did well and is likely to have a nice crop this coming year. I just mention this, as many of my neighbors thought I would lose my vines and my time as well.

My fruit farm is nicely situated on the shores of Lake Ontario, about 2½ miles east of Port Dalhousie, which is very much adapted to the growing of vines and tender fruit.

My Abundance plum is looking fine and I expect a nice crop this year; the tree has only been out since the spring of 1896.

WILLIAM CAMPBELL,
St. Catharines, Ont.

Outfits for Spraying Gooseberries

SIR,—I congratulate you and the Association upon the improvement in the organ of the Association.

I desire to call attention to a few facts in connection with sulphate of potassium as a fungicide, through its medium.

I am informed by a wholesale dealer in Toronto, Mr. Alfred Boyd, that it is impossible to get it in commercial quantities in Canada, at any price. He is therefore getting me $5 worth from Germany, with other goods he is importing.

Now if sulphate of potassium (liver of sulphur) is as efficacious as the Bordeaux for gooseberry mildew, it is preferable in that it is less trouble to make and apply.

But of course, if it has been proved deficient to the least degree, that would settle the matter.

The advantages of the sulphate are:—

(1) No lime needed.

(2) Therefore no slaking, decanting and straining.

(3) No burnt hands and clothes.

(4) No clogging of the nozzle.

(5) No stained fruit.

(6) No grinding of the valves of the pump.

(7) Small quantities are easily made in proportion.

The following are the implements I have provided, as a perfect outfit, for the manufacture of Bordeaux:—

(1) A large porcelain-lined kettle.

(2) A 48-gallon barrel.

(3) A 48-gallon barrel sawed across, this makes two large tubs.

(4) A large piece of burlap, with a hoop to fasten the burlap over the mouth of the barrel.

The kettle aids in dissolving the bluestone. by keeping the water hot.

The tubs are used for slaking the lime, and decanting serves to eliminate the sand, which all lime contains and which is hard on the pump, and makes the cleaning easier.

Some brother may have a better outfit, if so, it would be a charity to describe it, for the benefit of the less fortunate.

Green's Fruit Grower quotes the sulphate at 20 cents a pound, after special enquiry into the matter. At this price a 48-gallon barrel will cost 30 cents, or about the same as the Bordeaux, bluestone being 7½ cents a pound.

T. Eaton, of Toronto, catalogues it at 50 cents a pound, at which price its general use is prohibited.

In the interest of this growing industry, some steps should be taken to have the duty removed. I don't advise giving any coddling to gooseberry growers, but we certainly want a fair field and no favor, and if we can grow the large, rich, luscious English gooseberries, they will soon win their way into popular favor.

STANLEY SPILLETT,
Experimenter, South Simcoe Sub-Station.

Gooseberry Cuttings.

SIR,—I was rather amused reading the article on "Raising Gooseberries from Cuttings," in January No. CANADIAN HORTICULTURIST, page 38, and must say that Mr. Spillet is altogether in the wrong, as I have raised any amount from cuttings of various sorts; but as for the Industry I can't say much; I have found them slow growers and shy bearers, and have not tried to raise many, still I succeeded with a few. My plan is to make a small trench 5 or 6 inches deep and put in about two inches of sand along the bottom, cover with soil, stick the cuttings in and there is very little more trouble, but keep them clean The trench should be pretty well shaded.

WALTER HICK, *Goderich.*

Profit Somewhere.

SIR —I intend in a few days to send you a sample of my Improved Baldwin, as you were pleased to call it, it is not grown in any particularly favorable situation as I have it scattered over different parts of the orchard.

I put cards in several barrels of apples packed, asking the consumer to let me know how they turned out, the quality, price paid, etc. I received three answers, two from near London, very good, Baldwins fine quality; price paid 11/ and 11/6 Another from Nuremburg, Bavaria, well pleased with them, all giving good satisfaction to their customers. So there is a profit somewhere, when all we get for picking, fetching barrels and taking them to a station; boarding the packers—and they take none but the best —was 50 cts. I consider the packers and buyers are knaves.

WALTER HICK, *Goderich.*

Growing Gooseberry Cuttings.

SIR,—The HORTICULTURIST for January, 1897, page 39, contains a letter from Mr. F. W. Porter, of Mount Forest, on "Gooseberry and Currant Growing," in which he says, "In Mr. Spillet's article (in Toronto News) he makes the assertion that gooseberry bushes cannot be grown from cuttings," and then states that his own experience proves the reverse. Mr. Spillet's reply appears on the same page wherein he says "I emphatically repeat my statement in Daily News, that practically the gooseberry can't be propagated from cuttings."

As Mr. Spillet is conducting one of the Experiment Stations and is therefore supposed to have had considerable practical experience in that line: this statement of his "That gooseberry bushes cannot be grown from cuttings," is, in my opinion misleading, and may do much injury by discouraging would-be growers of that excellent fruit.

If Mr. Spillet had given the subject the consideration it deserved he would not, I think, have made such an emphatic statement; because many amateur gooseberry growers throughout the country are successfully and profitably producing bushes from cuttings every year. I have been growing gooseberries for the past 20 or 25 years and during that time have grown a considerable number of bushes from cuttings One year I planted 500 cuttings of the Whitesmith variety, from which I obtained more than 90 per cent of first-class bushes, and I can assure my amateur friends that notwithstanding Mr. Spillet's statement, any one can have like success by working intelligently.

THOS. BEALL, *Lindsay.*

Best Early Forcing Tomato.

SIR,—Would like to know what are the best early tomatoes for greenhouse for forcing early.

A. E. FRENCH, *Brantford.*

Ice House Ventilation.

SIR,—I built an ice-house for my own use, 13 x 14 and 7 ft. posts, and went to the expense of running a ventilator along the top, 3 ft. wide and 2 ft. high, with roof the full length of ice-house I understood that ventilation was one of the most important factors in the keeping of ice. Last season my supply wasted very rapidly, although well put in, and covered thoroughly with sawdust. I am now told that I must reduce my ventilation by at least ¾, as I am letting in too much heat in summer I should very much like to hear from those who know.

A SUBSCRIBER.
Belleville, Ont.

Grow Seedlings.

SIR,—One thing that I think we should remember, and that is a practice which, I

notice, is opportunely emphasized in the letter by your venerable and revered father, Mr. C. E. Woolverton, which appeared in the last issue of your Journal. I refer to the desirability (especially in all sections new to fruit culture) of planting seeds of the hardiest and best varieties of fruits, in the hope of producing something desirable from the standpoint of quality or of adaptability, to the climate and soil of the particular locality in which they are grown. Thus, for Manitoba, where fruits are so difficult to procure and produce, this kind of culture is a work that should engage the close and earnest attention of the pioneer fruit growers of the country. Seeds of the hardiest apples and crabs and small fruits should be sown profusely, their resultant product examined and the best selected therefrom. When we consider the large number of valuable varieties which have come to us and to fruit growers in all lands, by chance, we are impressed with the necessity of giving nature every possible opportunity of improving herself.

JOHN CRAIG,
Horticulturist.

How to Export Apples to Australia.

SIR,—Yours of 30th of October came to hand last month, but as my son advised you, I was just leaving for the north and could not then reply. He sent you a statement of a small lot of apples sent to Winter and a reference to a second lot. The first transaction was profitable, the second a loss. A third arrived on the 5th of January. It will be financially worse than the second. What made the difference? The first lot were well picked, packed, handled here according to the suggestions in my report of last year. The others violated these conditions. To get a profit out of this market the following conditions must be met:

(1) The fruit must be carefully picked.

(2) Carefully selected as to kinds and sizes. It cost too much to send defective fruit here and an Act may be in effect next year that requires all codlin moth affected fruit to be destroyed. Medium sixed apples are worth two shillings per bushel case more than large ones.

(3) Carefully packed according to directions previously sent.

(4) Carefully shipped.

It is as important that the railway shipment should be as sharply looked after as the steamship carriage. If they arrive in Vancouver in a poor condition stop them there, it is useless to send them on. Hence it would be well to have the cases looked at there. Generally the outside will indicate the condition of the contents. They should be shipped in sufficient quantity to take up a cold storage chamber and cool air at 40 to 50 degrees pumped in. The Frisco steamers carry fruit on deck but the Vancouver steamers will not do this. Hence the necessity for the cool storage.

(5) They should be properly handled here. Let me illustrate what I mean. No. 1 lot of apples came to Mr. Winter, who sold your shipment last year. He had his fruit on the market twenty-four hours after the arrival of the ship. The second lot came to a respectable commission fruit dealer who handled them in the ordinary way and as a consequence they were not on the market until seventy-two hours after arrival. Every hour is essential in this climate, and a delay of twenty-four hours makes a great difference in the appearance of the fruit.

(6) Shipments should be confined to fruit to land here early in November and December. Later than this the chances of a good market are very poor. Colonial fruit comes in and prices are low.

(7) Notice should be given of intention to ship, say in July or August in order to stop California fruit being sent here. Otherwise the market will be overstocked and prices be unprofitable.

(8) Too many must not rush into the trade nor too much fruit be sent. High prices are required to meet the cost, and more than a couple of thousand cases at once would ruin the market. Even that number would have to be put into cool storage and handled judiciously.

What is to be aimed at is to get two or three shipments of fruit landed here in good condition and marketed profitably. The Australian buyers would then go into the Canadian market from different cities here and the trade would take care of itself.

J. SHARKE.

Sidney, N. S. W., Jan. 7th, 1897.

Gooseberry Cuttings.

SIR,—Will you please allow me to give the HORTICULTURIST my experience. I have read the dispute in the HORTICULTURIST, also in Green's Fruit Grower. Even nursery-men say gooseberries cannot be propagated from cuttings. Many years ago I trimmed Houghton gooseberry bushes, not because the bushes wanted trimming, but I wanted to enlarge my gooseberry garden. I put the spade in the ground, then drew out the spade and put in the slip. I put in I might say a hundred, and they all grew. Some of them were long. I doubled them, put the double in the ground, top and but end out, both ends grew. I tried the same thing with Downing, but not a bit would grow. Now this land is not moist land, but dry gravel. I have not tried other gooseberries, I have very few of them.

Is the Grimes' Golden apple and the Newtown Pippin apple the self same apple?

GEORGE MARSHALL,
Stirling, On

[No, they are entirely distinct.]—ED.

RESIDENCE OF MR. JOHN HAYDEN, COBOURG.

THE
CANADIAN HORTICULTURIST.
VOL. XX. 1897. No. 4.

HOME OF MR. JOHN HAYDEN, COBOURG.

AMONG the photographs which we have received in response to our request, is a fine view of an interesting house in Cobourg. It takes many years, and much taste, to make a beautiful picture with lawn and trees about a house, but this our friend Mr. John Hayden, has well succeeded in doing. What a grand lawn tree that old locust is after all, despite its rough bark and brittle limbs ; it towers up to such a lofty height, its foliage is so graceful, and yet so open, only half hiding objects beyond. Then the drapery of the house, formed by festoons of climbing vines almost meeting the shrubs at the base of the veranda, is in good taste ; for to hide the house foundations completely with shrubbery so that the house and the lawn seem in a manner to be a unit, is in accordance with the principles of landscape art.

Respecting his yard decorations, Mr. Hayden writes : The Meerschaum vine on the gable was given me by the late Mr. Hume, father of John Hume, Esq., of Port Hope, some 25 years ago. It is much admired ; also the Virginia creeper on the corner. In shrubs we have honey suckles. The trees are locusts, chestnuts, elm, mountain ash, and spruce. As you only see part of the lawn in the photo, there are numerous beds of flowers, such as geraniums, fuchsias, marsh mallows, pansies, carnations, all in separate beds. There is also a long bed of choice roses, over 12 varieties, from Webster Bros., Hamilton. I have a grapery with five varieties of choice grapes, viz. : Black Hamburg, Muscat Hamburg, Bucklands Sweet, Sweet Water, Rose Chasselas, all of which have bore well for the last 20 years. I had the vines from Ellwanger & Barry, of Rochester ; they yield very fine fruit, which has been distributed freely among sick people.

The small greenhouse shown is larger than it appears ; there are some 200 pots of all kinds of house plants, palms, etc. It is a source of pleasure, especially in the winter. My experience is this ; to be successful with flowers, you have to love them. My wife attends to the flowers ; we are both amateurs.

Now, my vegetable garden is not

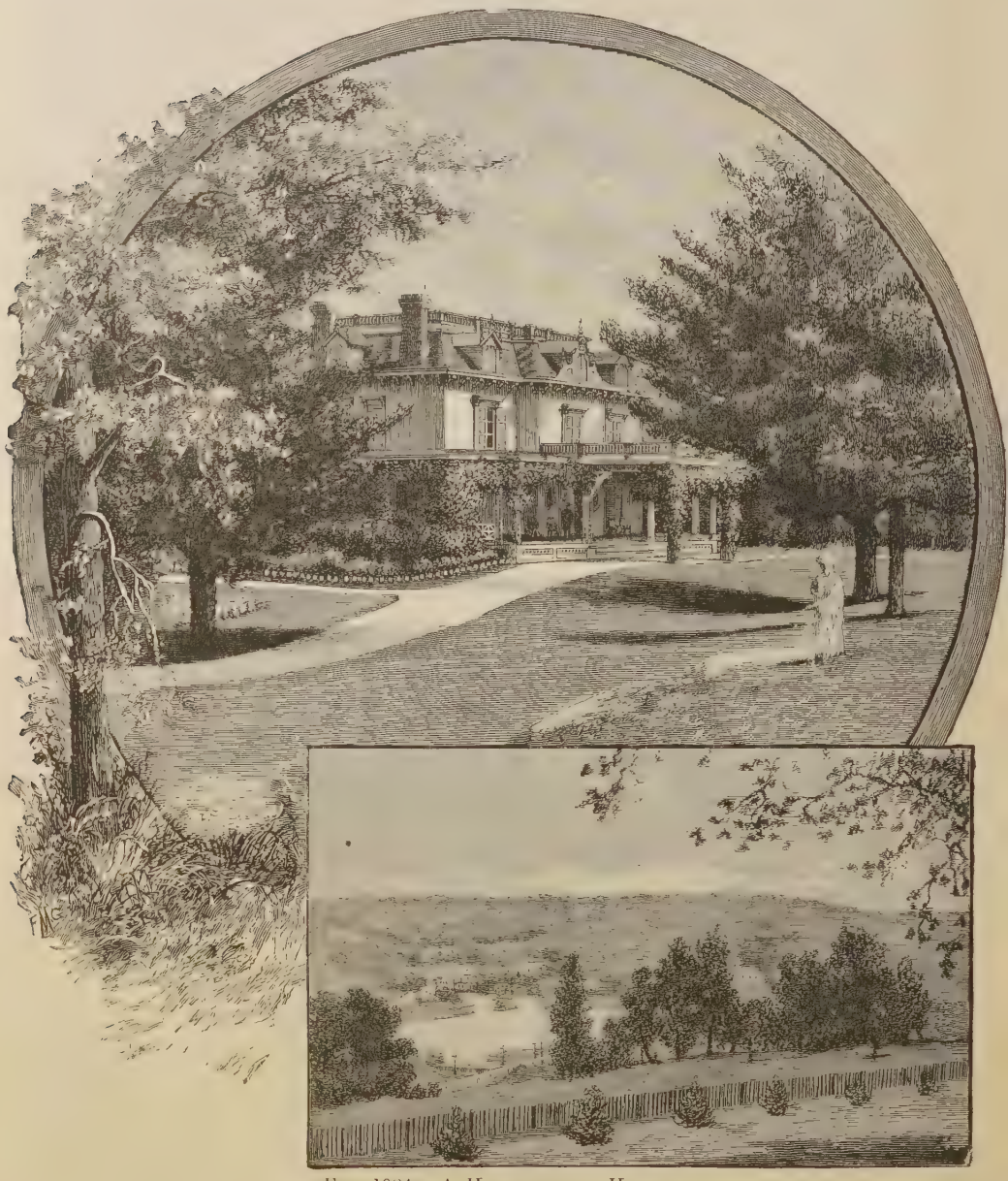


FIG. 1084.—A HOME ON THE HUDSON.

large, but the quantity of stuff I get from it is wonderful. In some parts I get three crops; have over 20 varieties of vegetables—some rare ones—the long rows are of sweet peas, over 14 choice varieties, which continue in bloom until frost comes.

I have plums, pears, apples and cherry trees; the latter delights the robin, they sit and watch them getting red, and then they go for them. I delight to work in the garden all the odd moments when away from business.

GARDEN WALKS.

IN continuation of the subject of "Yard Decoration," p. 51, we give a view of a home on the Hudson River, (Fig. 1084) which suggests one special feature of the art; we refer to that of so arranging the planting of trees and shrubs as not to obscure any interesting or beautiful views. In this instance the beautiful Hudson, with the distant hills form a picture that no one with half an eye for the beautiful would ever think of hiding, but how often this consideration is entirely forgotten, and spruces and other trees are planted just where they should not be, while some ugly barn or board fence remains in full view.

The graceful curves in the walks approaching the house in this illustration are also worthy of notice, and imitation.

The following excellent pointers under this head, are from Edward Kemp's work, "How to Lay Out a Garden":

Walks should be made to embrace particular views, and take a variety of levels, to be concealed from each other, and to have a definite object. All the more interesting aspects of the house, the garden, and the country, ought to be seen from them at particular and favorable points. These points should thus be situated where the ground is highest in a general way, that the view may be the more commanding.

Undulation in the surface of walks, where it can be suitably obtained, will be very effective in the production of variety. It must be very gentle and gradual, and like the curves of the ground line, the changes should pass softly and sweetly into each other.

If two walks be seen from each other, which are taking parallel directions, one of them will appear to some extent needless, and in the same degree objectionable. Masses of shrubs, or banks of earth partially clothed with these, are the most natural and gentle divisions for placing between them. A walk that leads nowhere, or ends in nothing, gives an impression of an unfinished place, and is as unsatisfactory as all other abortions. If it be not possible to continue it beyond a certain point, and yet be of consequence that it proceed so far as that point, a summer-house or arbor or seat to obtain a good view will be a sufficient terminating object. Otherwise the walk can be carried round a small circular or other loop, filled with shrubs till it returns again to the same spot.

No walk must ever turn aside from its course except for some sufficient object. A great change of level, a tree, plant, or group of plants, and a variety of such things, will justify a curve in a walk; and when it is straight something must be distinctly placed to stop it, where it turns off in a lateral direction It should appear as if it *could not* go any further in that direction. Repton suggests as an excellent rule, that where two walks branch off from one another at any point, they should take a decided outward turn (see Fig. 1085) so as not to seem as if they would unite again.

FIG. 1085.—PATH MAKING.

Fig. 1086.—Mr. C. P. Carpenter.

LITTLE more need be added concerning these fruit centres, for we want to deal with many other parts of our beautiful Province. There are two Winona men, however, who have accomplished so much, toward the development of the fruit industry in Canada, that we must not pass them by. We refer to Mr. E. D. Smith, who is referred to in a succeeding article, and to Mr. T. H. P. Carpenter, whose beautiful house is shown in Fig. 1087.

At Winona station, these two gentlemen compete with each other in their purchases of fruit from growers, and in their circulars of prices current to buyers. Having telephone connection from the shipping sheds, with the leading growers, they can soon have at their command any quantity of fruit for the filling of orders. Mr. T. H. P. Carpenter and his father, C. P. Carpenter, formed a partnership in the fruit shipping in 1878, and the business of the firm in the fruit business averages between $25,000 and $35,000 per annum. In 1893 their shipments of choice dessert grapes amounted to about half a million pounds, since

Fig 1087.—Residence of T. H. P. Carpenter, Winona.

FIG. 1088.—MR. CARPENTER'S VINEYARD.

which date the amount shipped has increased year by year.

Their farm consists of about 175 acres, well stocked with vineyards, orchards and nursery stock. A great variety of fruit is grown, including peaches, pears, plums, grapes, quinces, apples, cherries, raspberries, blackber-

FIG. 1089.—BASKET FACTORY, GRIMSBY.

ries, gooseberries, currants, etc.; but the vineyards (Fig. 1088) have always received especial care, and yield wonderful results. Among about 60 varieties of grapes under cultivation for profit, he esteems most highly the following:—Agawm, Lindley, Salem, Wilder, Delaware, Niagara and Moore's Early.

The cut at the head of this article represents Mr. C. P. Carpenter, one of the oldest residents of the section, who was born in 1826; by his pluck and perseverance he has made a success in life and has won universal respect.

A view of the old Grimsby basket-factory is given (Fig. 1089), showing a load of peach baskets ready to be sent out for the use of some peach grower. The number of baskets required for fruit in this section is enormous, and increasing yearly.

To give an idea of the fruitfulness of some of the garden ground in this section, we are authorized to say that Mr. Hugh Anderson, of Grimsby, harvested in one year 1,600 baskets of peaches from 600 trees, only four years planted!

MANITOBA NOT AT THE NORTH POLE.

IT seems very difficult to dispel from the minds of many people even in Ontario, the impression that Manitoba is situated somewhere in the immediate vicinity of the North Pole—even those who should know better give expression to some very strong statements in this connection. One of the large seed firms in Toronto in their 1897 seed catalogue, in advertising the Siberian pea, refer to it as follows, "Caragana, the one hardy shrub for Manitoba and the North-West." This is set out in large bold type, and is perhaps the most striking thing on the page of the catalogue on which it appears. This catalogue is sent from the Atlantic to the Pacific, and is calculated to do injury, as the statement is altogether incorrect. No doubt the Siberian pea is well suited to this Province, for while this catalogue goes on to describe it as a "tall growing shrub say four or five feet," it grows on our soil to twelve and fifteen feet high. To illustrate how absurd is the idea that this is the one hardy shrub that grows here, I would point out that of the thirty-four varieties of "Hardy Shrubs and Herbaceous Plants," advertised in this catalogue, I have the twelve following growing in my own garden, viz.:—coreopsis, berberry, caragana, lonicera gaillardia, hollyhock, hydrangea, philadelphus, snowball, spiræa, purple lilac and yucca. Many of the remaining kinds are grown here, but I refer simply to what I grow myself. I think at least 30 of the 34 kinds will grow in this climate, and of these some grow most luxuriantly, *e. g.*, caragana, coreopsis, hollyhock, lonicera (Tartarian honeysuckle) and philadelphus (mock orange). It is not climate or soil we lack to grow ornamental shrubs, but a leisure class who will do it for pleasure, or a sufficient population to furnish a field for the nurseryman in the Province. We can boast of as many ornamental shrubs as Ontario could when she was 25 years old, and though the larger fruits grow more readily there than here, on small fruits and shrubs we would ask for further time for testing before we admit that we cannot equal the eastern Province.

Morden, Man. A. McLEOD.

EXTENSION OF FRUIT GROWING.—I.

FIG. 1090.—MR. E. D. SMITH, WINONA, ONT.

The following paper was given by Mr. E. D. Smith, at a large gathering of farmers, at Stoney Creek, last February. It is a strong, enthusiastic paper, and our readers may wish to know something of the writer. Mr. Smith is a Canadian, who had large early experience in farming, but in 1885 coming into possession of land 85 acres of the paternal estate, he turned his attention to growing fruit and fruit trees. A pushing energetic man, of unusual business ability, his undertakings have proved successful, and his name is well known throughout Ontario. Mr. Smith has now growing 125 acres of solid nursery stock, at Helderleigh (views of which are shown in Figs. 1091 and 1092) on land all thoroughly tile drained 30 feet apart, and he gives each crop about 30 tons of well rotted stable manure, or other composite manures.

As a fruit grower he is no less enterprising. He has now over one hundred acres in fruit, all thoroughly drained. Of this about fifty acres is in grapes, (a view of which is shown in Fig. 1093) and the rest in a great variety of other fruits.

Mr. Smith keeps several teams of horses, and grows all the hay and oats needed, upon his own farm. In addition to the manure from his own stables, he buys compost from Toronto, and supplements the whole with bone dust, and about 2000 bushels of ashes annually.

But it is a buyer and shipper of fruit at Winona station that Mr. Smith is most widely known. He has made his name and the name of Winona famous among fruit dealers far and wide through the enormous amount of fruit which he has distributed, and in this way he has given enormous impetus to the planting of fruit and fruit trees about Winona.

In the following article, however, it is evident he speaks from the standpoint of a grower and seller of trees than that of a fruit grower, and while we credit him with perfect honesty in his statements, we know many fruit growers whose experience of the last few years has led to utter discouragement.

AFTER such a season of low prices as the one just passed, the subject of my paper becomes a pertinent question. "Has the planting of fruit orchards, vineyards and berry fields for commercial purposes been overdone"? You will notice that I say "commercial purposes" because I judge there is no one so bold as to say that planting for home use by the householders of this broad, fertile Dominion has been over done, especially when we know the tremendous importance it is to the health and vigor of our people to have an abundance of ripe fruit, and at the same time know that thousands of homes all over the country still have little or none of their own to gather, and when such is the case seldom buy any.

Now it is no more fair to assume the year 1896 to be a guide as to prices than to take the year 1895. The high prices of the latter year were brought about by the crop being short in many sections, though extremely heavy in others; this will not likely occur more often than in the past, when it has averaged once in five years for the last twenty seasons.

The low prices of 1896 may never occur again, as they have never occurred in the past, although we have had, almost, if not quite, as heavy crops in proportion to the markets opened up and the facilities for handling the product. Had we had the crop of 1896 ten years ago we could not have given it away at a price to pay, and so should we have no larger

FIG. 1091.—A BLOCK OF PLUM TREES AT HELDERLEIGH.

a crop ten years hence, it would be accounted a famine year, and famine prices be obtained. I can well remember when a wagon load of grapes on Hamilton market was considered quite enough, and wise-acres shook their heads and declared that with the reckless planting of whole acres of vines the market would soon be overstocked, and you could not give them away, and yet since that time I have sold grapes at double the prices obtained then. The first load of grapes I ever sold was 320 lbs. on Hamilton market, away back in 1877, and I had the greatest difficulty in peddling them off at 3 cents for the most beautiful Delawares, and 2 cents for equally beautiful Concords. I obtained that price for Delawares last year with this its awful crop of all kinds of fruit, and repeatedly since then I have got double that price for both Concords and Delawares. We need hardly look for double these prices again ; but I feel perfectly satisfied that we will, as in 1895 with its heavy crop of grapes, fully as heavy here as the crop of 1896, realize a very large revenue indeed. We need hardly expect the large profits of such years as 1895 to be often repeated, indeed we may fairly look for very moderate prices at least four years out of five, but we must not forget that a cent and a half a pound pays us better now with ten, twenty or fifty acres in vineyard,—yes, even one cent per lb. pays us better than three cents fifteen years ago with one and two acre patches ! The man who grows ten acres now can grow them nearly a cent a pound cheaper than he could then on one acre. Improved methods of culture, cheaper wire, cheaper trimming, no unnecessary waste by planting useless varieties, a better knowledge of soils and locations, better facilities for marketing, cheaper baskets, and last, but not least, the fact that a dollar will buy nearly twice as much of many things we require, all combined, enables us to market the product of ten acres with but little effort, while in those

days we found difficulty in peddling out the product of one acre

The question next arises, can we still further expand our markets? they appeared full in every direction last year. I say we can. Last year I received a letter from a friend in Yarmouth, Nova Scotia, saying why do you not send grapes here? they are retailing at 18c. per pound. Now, I had offered grapes to all the best dealers in that town for several years at prices current. Last year about one and-a-half cents per pound here, equal to about 3c. there, and succeeded in getting no orders, the dealers, doubtless, getting them as cheap from Boston, from whence daily boats came, and that in spite of duty. The retail dealers, doubtless, put their heads together and decided that it would be more profitable to buy grapes at 3 cents and sell at 18 than to do double the business and sell at 10 cents, or four times the business at 7 or 8 cents. I have seen this same thing in all our towns up north, such as Fergus, Mildmay, Walkerton and others, some years ago. But gradually some smart chap makes a break and sells lower, and discovers that where he formerly sold 10 pounds at 15 cents per pound, and wasted five pounds while waiting for monied people to come and buy at these high prices, he can now sell a hundred pounds, and do it so quick that he has very little waste, and, moreover, that he can buy cheaper when he sends to the place of production for 100 pounds than when he bought 10 pounds from a city dealer, and so the educating process goes on, and that is what we call opening up a market. The town that formerly used 100 pounds per week now uses 1,000 pounds, and yet there are hundreds of towns yet to know the blessings of cheap fruit; hundreds of towns yet where the greed of the retailer has yet to be foiled or where he has yet to learn the funda-

FIG. 1092.—A BLOCK OF 60,000 APPLE TREES AT HELDERLEIGH.

mental principle of business, that cheapness increases consumption, and enables him to make larger profits by handling larger quantities with despatch.

Then we must not loose sight of a probable market in England for our grapes. I make no doubt whatever, but that with proper cold storage we can lay our grapes down in Britain in perfect condition, and further; if the market there is fully tested we shall be able to cultivate a taste between the middle and working classes of Britain for our grapes, on account of their cheapness and good quality. Malaga and Black Hamburg, and other fancy grapes usually offered for sale, are too dear for these people to use freely. If we can once get these classes to like our grapes we have a market for all we can grow in Ontario. I have thus far spoken chiefly of grapes, mainly because we here grow them largely, and seem to have the soil and climate suitable to their growth in the greatest perfection, and because many are in doubt as to the future. Before I finish speaking of grapes, however, I want to say, that even this year with all its enormous crops of all kinds of fruit, grapes paid a profit of at least $30 per acre net, over all expenses. Where is the farm crop that did it?

Taking up other fruits in their order, no one could complain of the price of strawberries during the past season, and yet this is a fruit more easily overplanted than any other, for the simple reason, that they can be grown over the whole country with success. Strawberries have been overdone, but now there are not enough planted. Raspberries have never yet, on good soil, failed to return a handsome profit; they paid less in 1893 than last season. It has always been a mystery to me why raspberry growing is not overdone. This fruit is more easily and cheaply grown than almost any other, and succeeds over a wider range of territory, and yet it has not yet ceased to be an extremely profitable crop. Doubtless the imposition of a duty by the U. S. government will strike a blow at the trade, though it seems to me I have heard somebody say that the consumer always pays the duty, when goods come into Canada, and if this be so maybe the consumer of our raspberries in the United States will somehow help us out.

The currant is a fruit more likely overplanted for market than any other, in my opinion, as it is not a fruit so universally used as other fruits, and, moreover, it is so cheaply and easily grown. Another year or two is required to speak with certainty about this fruit. I am inclined to the belief that the great scarcity of money had more to do with the low prices of currants last year than anything else; the crop the year previous was nearly or quite as heavy, but owing to money being more plentiful and other fruits dearer in price, currants paid splendidly. Even last year my Fays turned me $200 from two acres, clear over all expenses of picking and baskets, though like the rest, I suffered with the hitherto most profitable Raby Castle and got no profit out of them.

Blackberries will always be a profitable crop on land best adapted to them, in my opinion, as they come at a season when fruit is usually scarce, there being only early peaches to compete with them, and, moreover, there is not a very wide range of land suitable to this fruit, ripening as it does three years out of four during a prolonged drought.

As for peaches, I well remember the season of 1880, when Crawfords sold for 25 cents per basket and less, and everybody prophesied the absolute ruin of those who had been foolish enough to invest large sums in peach plantations, and yet, after 16 years of steady planting,

Fig. 1093.—Vineyard at Helderleigh.

not less than 150,000 peach trees annually, or an aggregate of about 2,400,000 trees, we have Crawfords selling in the self-same market at 80 cents per basket in the year of extreme plenty of all kinds of fruit, with a most prodigious crop of peaches, in the famous peach country of Essex. It looks very much as though had every peach tree in Canada been loaded as Essex was, and in spite of everything imaginable working against good prices, still we would have realized much better prices than 16 years ago. True, the area of profitable peach growing, owing to the introduction of hardy varieties, has greatly widened since 1880, but for all that it must not be forgotten that peaches as well as grapes can only be grown in a limited section of the whole Dominion and the consuming population is the population that is increasing. The peach growers of Michigan got prices last year about like ours in 1880, and yet they are not discouraged, they say it pays infinitely better to grow peaches, when they succeed well, at 10 cents per basket, than grain at present prices.

As for plums which have here especially come to be a most prominent fruit crop, there is this to be said, the crop of 1896 was as heavy in all the western counties as it could possibly be; and from Stony Creek east to Niagara river, no more could stick on the trees, and yet they were all marketed at remunerative rates. I know of a crop of plums which must have brought $500 per acre the past season, and any full-grown plum orchard at Winona must have returned the owner from $200 to $500 per acre net over baskets.

E. D SMITH.

Winona, Ont.

HARDY CLIMBING ROSES FOR CANADA.

WHERE is the devotee of Flora who does not long for an arbor, porch or trellis, on their own grounds adorned the summer long with clusters of handsome roses? There seems to be a desire in the heart of every rose-grower for varieties of this description. Thousands of Canadians every year buy everblooming, climbing roses from southern florists; and thousands are yearly disappointed because they do not survive the chilly Canadian winters. The florists are generally much abused in consequence, but it should be remembered that each firm covers a wide range of territory with its catalogues, and it is more than likely that the varieties described in those catalogues as hardy, are quite so with a vast majority of those who buy from them.

Hardy climbing roses of fine quality and color are certainly one of the additions to the "Queen of Flowers" which the future holds in store. It appears to be but the matter of a little time till such varieties shall be obtained, for never before have the efforts of professional hybridists, in this line, been so fruitful; and never has there been so many promising new varieties upon the market. Excepting some recent introductions of which we cannot yet speak with certainty, we think the following review includes all the best known hardy climbing varieties:—

Baltimore Belle, Prairie Queen and Gem of the Prairie head the list for hardiness. They are old it is true,

Fig. 1094.—Madame de Watteville.

the first two varieties being raised at Baltimore in 1843; but they will undoubtedly endure more frost than any later introductions. Baltimore Belle bears pale blush flowers, often white. Prairie Queen, rosy red, sometimes marked with white. Gem of the Prairie, rosy red, the only one of the three that has a fragrance. Greville (or Seven Sisters), color blush, tinged and striped with various colors; the flowers are borne in clusters of seven or more. It is decidedly tender at Hamilton. Mary Washington, a variety of uncertain parentage. It is said to have been raised by George Washington, and to be still growing in his old garden at Mount Vernon. It is a rapid grower and a free and constant bloomer. Flowers pure white, globular in shape, and fragrant; would be of great value were it more hardy, but we have seen it, when unprotected, freeze more severely than some of the Tea roses. Those who give it sufficient protection are rewarded by great quantities of elegant flowers, that amply reward them for their trouble.

Caroline Goodrich, a well-formed flower, rivalling Gen. Jacqueminot in color; though it winters well sometimes, it lacks that degree of hardiness possessed by Prairie Queen and other prairie roses.

Crimson Rambler, the new climber from Japan. It grows well, winters well, and blooms grandly. The flowers are not large, but the huge clusters in which they appear, render this no defect; the color is rich glowing crimson. Promises to become a permanent favorite in this country.

Empress of China; this new variety has many good points to recommend it. The growth is wonderfully rapid, bears most freely and constantly, flowers that resemble a Tea rose in shape; the color is light red or pink. Though we cannot yet speak of its hardiness from experience, there seems to be no cause for uncertainty about it. The introducers frankly state that it has stood sixteen below zero, without injury.

Climbing Captain Christy, Cl. Jules Margottin, Cl. Victor Verdier and other climbing forms of Hybrid Perpetual varieties are largely planted in Britain, but their tendency to winter-kill to within a short distance of the ground, and the fact that they flower but once in the season, render them unpopular here.

Climbing LaFrance and Cl. Meteor; these originated as "sports" from the dwarf Hybrid Tea varieties of the same names. There is no occasion to look further for finer, sweeter-scented climbing roses than these; but one must not expect the canes to live, where the wood of the dwarf varieties are injured, for they are identical with the parent variety in every way, except that the canes grow much longer. However, the quality of their flowers and constant blooming habit, entitle them to the most elaborate protection the gardeners' art has devised.

Marechal Neil, Gloire de Dijon, Cl. Malmaison, Cl. Perle des Jardines, Cl. Hermosa and other climbing Teas, stand the winter on the Pacific slope (B. C) with little or no protection, and will winter outside here on the Niagara Peninsula, if well protected. When uninjured by the cold they make a glorious display all summer. Roses of this class should not be wrapped or covered too early; the first frost simply assists the ripening of the wood.

Hamilton. WEBSTER BROS.

FIG. 1095.—From a Photo of a Cherry Tree, seven years planted, on ground of M. J. HENRY, Vancouver, B. C.

FRUIT growing in British Columbia can be made very profitable if the settler has means enough to properly clear the land and live until he can get returns from his plantation of fruits, which means an expense of $200 to $400 per acre for clearing, and his living for two or three years until his fruits begin to bear.

Nearly every variety of plums and prune grow to perfection here, but there are only five or six varieties that I would plant for profit.

Cherries do equally as well, and bring good prices, especially the Gen. Wood, Yellow Spanish, May Duke, Royal Ann and Black Tartarian. Seven years ago, my friend, Daniel VanWyck, of Ridgeville, Ont., sent me some suckers of the common sour cherry, which have now grown into bearing trees, and have proved to be one of our best preserving cherries, selling readily at 10c. per pound, growing larger fruit than they did in Pelham and perfectly free from black-knot or worms.

Very few apples grow to perfection in this lower part of British Columbia, near the salt water. I grow good Yellow Transparent, Maiden's Blush, Wealthy, Duchess of Oldenburg, Talman Sweet and King. Baldwin and Ben Davis yield and keep well, but do not color up nicely. The Dutch Mignonne and Little Romanite, I notice do well in neighbors' orchards. Around Lytton and Armstrong, in the upper country, they grow the finest apples I ever saw.

Nearly all the English gooseberries mildew badly with us, but the Downing and Oregon Champion are free from it so far and yield immense crops.

Vancouver, B.C. M. J. HENRY.

LECTURERS TO HORTICULTURAL SOCIETIES.

FIG. 1096.—MR. JOHN CRAIG.

A VERY interesting feature of the work of our Association is the sending out of lecturers on horticulture each year, to address the affiliated societies. This is a line of work hitherto largely neglected by horticultural societies, but among the most important of the objects for which they exist and receive government support. In taking up this work we are filling this want, and doing, in a small way, extensive work in horticulture such as is being carried on at great expense in other countries.

We have now twenty-eight Affiliated Societies, and for these we provided three lecturers. For the nine Societies east of Toronto, the Hon. S. Fisher, Minister of Agriculture, sent us Prof. Craig, horticulturist of the Central Experimental Farm, Ottawa, a sketch of whose life appeared in a previous number. His subjects for lectures were (1) "Decoration of Home Grounds" (illustrated; (2) "Window Plants and Perennials"; (3) "How Varieties Originate, and How Individuals are Multiplied"; (4) "Fruit Growing Regions of Canada" (illustrated).

Mr. W. M. Robson, Pres. of the Society at Lindsay, sends us a glowing account for the hearty reception given Mr. Craig at that place, on Thursday evening, Feb. 25. The chair was occupied by the Mayor, and the hall was packed. The local paper gives two columns to a report of the address, and the answer to questions. Similar reports came from Smith's Falls, Napanee, and other places.

Mr. D. W. Beadle, a sketch of whose life has also appeared in this Journal, is a well-known pioneer Canadian horticulturist and first editor of this magazine, has made the following tour of lectures, viz., to the Affiliated Societies

FIG. 1097.—MR. D. W. BEADLE.

at Freeman, Grimsby, Niagara Falls South, Port Colborne, Hagersville, Port Dover, Simcoe, Thornbury and Meaford. He treated of such subjects as

FIG. 1098.—MR. ALEX. MCNEILL.

"Injurious Insects and Fungi," "Plant Food," "Cross Breeding," "Flower Garden and Hardy Perennials," "Lawn and Front Yard," "Neatly Kept Garden," etc.

Mr. Alex. McNeill, one of our directors, is making the Western trip to the following list of Societies, viz., Chatham, Seaforth, Kincardine, Durham, Brampton, Waterloo, Paris, Woodstock and Leamington. His subjects were (1) "Horticultural Possibilities of a Town Lot"; (2) "How to Grow and Care for House Plants," and (3) "Insect Pests." Mr. McNeill is coming rapidly to the front among our horticultural speakers. His early training was on his father's farm in Middlesex, and there he acquired that perseverance in overcoming difficulties so essential to success. He afterward took a training for teaching, to which profession he devoted seventeen years, latterly a science master at Windsor High School. Tiring of the confinement of the school, Mr. McNeill, some years ago, turned his whole attention in fruit growing, making a specialty of the grape, and gradually turning his attention also to other fruits and to floriculture. Such a combination of school training and practical work develops the best elements for success, whether in one's own business or in giving pointers to others; and therefore we value Mr. McNeill as well worthy of a place along with the other two above mentioned lecturers in horticulture.

A SHADY RUSTIC SEAT.

The illustration shows the foundation for a vine-covered rustic seat. In rustic work of any kind it is best to select fairly smooth pieces of wood, with not too much irregularity of branching. Smooth sticks, closely covered with bark, make much the more satisfactory work, providing plenty of the rustic look where more would look incongruous. The top of the seat shown could be arched, if such a style were preferred. Vines planted at the ends and in the rear will soon cover the whole and give a delightfully shady seat.

Roses of a tree growth, climbers or trailers could be utilized in any of these structures, and if combined with clematis would give magnificent results.—American Gardening.

FIG. 1099.—SHADY RUSTIC SEAT.

The Orchard and Fruit Garden.

SMALL FRUIT CULTURE FOR MARKET.

(*Continued from page 65.*)

If the planting is not done until spring, most soils suitable for small fruits will be benefited by a deep fall plowing, followed by a shallower cross-plowing as early in spring as the land is workable, or by thorough and repeated working with one of the numerous forms of disk or spading harrows now in use.

This should be followed by a lighter pulverizer or smoothing harrow before the soil becomes lumpy. The roller or plank clod crusher can sometimes be used to advantage, but if the soil be taken at the proper stage of dryness the treatment noted above will rarely fail to accomplish the desired result. Too much attention can hardly be bestowed upon this matter of soil preparation, yet it is often slighted by small-fruit planters. Errors in fertilizing, cultivating, or pruning can sometimes be corrected by subsequent good treatment, but deficient preparation cannot be overcome during the existence of the crop.

MANURING.

Unless the soil is very rich from previous fertilizing, the crop will be largely increased by the application of well-rotted stable manure, say 20 tons to the acre, applied before the final plowing or thoroughly worked into the soil with a spading harrow. If stable manure is not obtainable, finely ground bone and muriate of potash can be profitably used on many soils. Nitrate of soda can sometimes be applied in moderation with profit. If the soil is of a sandy nature and known to be deficient in nitrogen, a preparatory crop of crimson clover will doubtless be advantageous in climates where this plant succeeds, or other leguminous crops may be grown and plowed in. Hardwood ashes are excellent on most soils and, in general, commercial fertilizers rich in phosphoric acid and potash may be profitably used. The selection of the fertilizer that can be most profitably used on any particular soil must be determined by local experiment, however, and upon the very field in question, unless tests have been made on similar soils in the immediate neighborhood.

It should be said that among growers who ship their fruit long distances, there is an increasing tendency to favor commercial fertilizers rather than stable manure, on the ground that the fruit thus grown is firmer and of better carrying quality. This applies particularly to fruit grown in the humid climate of the South Atlantic and Gulf States, where most fruit plants incline to make a rank growth, which produces watery fruit, and where rains during the ripening season are frequent. A considerable gain results also from the absence of weed seeds from prepared fertilizers,

these often proving very troublesome in fields enriched with stable manure.

PLANTING AND CULTIVATION.

The best time for planting small fruits is yet a disputed question, except in the North, where fall-set plants of most species are subject to winter-killing. There are few localities where spring planting is not the safer method, though often the soil can be more thoroughly prepared and the planting be more cheaply done in autumn than in spring. If done in autumn, in regions where the ground freezes to any considerable depth during winter, the newly-set plants should be well mulched to prevent winter injury.

All planting should be in straight rows of equal distance apart. In the case of the bush fruits it is often advantageous to have the rows laid off both ways, so that the cultivator can be run in both directions, at least during the first season. If the land is hilly and inclined to wash, the rows should be laid around the hills, conforming to their curves, but on land reasonably level the rows should, if possible, run north and south and should be as long in that direction as the shape of the field will permit. Overcrowding of plants should be avoided, as fruit of large size is rarely produced by plants having insufficient food, air, and sunshine If more than one variety of any fruit be planted, or if plants of the same variety be obtained from different sources, each lot should be separately planted and labeled. Failure to do this often leads to expensive uncertainty in later years when plants are desired for new fields or for sale. Many a careless or dishonest plant grower or dealer has escaped responsibility for misnamed or damaged stock through the inability of the planter to positively trace the plants to his establishment.

Plants should be promptly examined upon receipt, and should be at once heeled in if planting cannot be done immediately. In no case should they be permitted to dry out or be left with roots exposed to the sun or to drying winds. If dry when received, they can often be freshened by placing the roots in water for a few hours. If the weather is dry at planting time, the "puddling" of the roots by dipping in a thin mud of clay and water to which fresh cow manure has been added will often go far toward insuring their growth.

Before setting out, each plant should be carefully examined, and all broken or decayed roots, leaves, or branches should be removed. Plants found diseased or infested with injurious insects should be promptly destroyed, unless the affected portions can be readily cut off and burned. The roots should always be placed in contact with fresh, moist soil, whether the planting be done with the hand or with dibble, spade, or other implement.

Cultivation should immediately follow planting, and should be repeated at frequent intervals during the spring and summer. The appearance of weeds should not be waited for, as the cultivation is for the crop rather than for the destruction of weeds. In general it should be shallow rather than deep, though when the soil becomes hardened by the impact of heavy rainfall or the tramping of berry pickers, the grower should not hesitate to break it up by running a sharp cultivator, or even a light one-horse plow, to the depth of 3 or 4 inches between the rows. If the soil is properly prepared and the cultivation regularly kept up, this tearing up will rarely be necessary except after the harvesting of a crop of fruit. Provided the soil is in condition to work, once a

week is not too frequent for the shallow cultivation of the small fruits during the growing season, and during the July and August drought that frequently prevails the surface soil should rarely remain unstirred longer than four or five days. Toward the end of summer, particularly on rich and moist soils, cultivation of the bush fruits should be less frequent, and it should entirely cease before the first frosts occur. The use of the hoe in small-fruit plantations should be avoided as far as possible, but when needed hoeing should be promptly done. With land in good tilth and clean at the start, with fertilizers free from grass and weed seeds, the necessity for the expensive and laborious use of the hoe as formerly practised is greatly reduced. But in order to accomplish this the land must be free from clods, sticks, and stones, the cultivator teeth sharp, the horse steady and true, and the man active and careful.

PRUNING AND WINTER TREATMENT.

Where winters are severe enough once in four years to seriously injure unprotected bush fruits, mulching or laying down will often pay well. Much depends upon the character and cost of the material used, and its durability. Straw, unless clean threshed and free from grass seeds, is a most productive source of future trouble to the grower. Forest leaves can be secured in sufficient quantity in some localities to be available for use among the bush fruits. Where obtainable, pine needles also form an admirable mulch, and with a little care in removing can be used two or three times. Broken cornstalks that have been well tramped over in the barnyard are useful, and sorghum bagasse is utilized in some sections. In colder and drier climates the only sure protection for blackberries and raspberries is the laying down and covering of the canes. This is accomplished by digging away from one side of the plant, toppling it over with a fork, and wholly or partially covering the canes with earth from between the rows. This method involves staking or trellising the bushes when they are raised again in spring, but it is found profitable because of the insurance against crop failure which it affords. On most heavy soils water furrows should be run between the rows with a light one horse or shovel plow late in fall, in order that surface water may be promptly removed during the winter months.

With the strawberry the only pruning needed will be the removal of superfluous runners. The raspberry and the blackberry, bearing their fruit almost exclusively on branches from canes of the previous year, are benefited by systematic pruning, while the currant and the gooseberry need it as urgently as do the tree fruits or the grape, if large fruit is the object sought.

Though sometimes subject to serious damage by insects and fungous diseases, the small fruits, as a class, are less injured by them than the tree fruits. Most of the serious troubles may be avoided by choosing vigorous and resistant varieties or by spraying with well-known insecticides and fungicides.

VARIETIES FOR MARKET.

In the selection of varieties for planting, the best guide will always be local experience. If the grower aims to supply a home demand, he may often find it profitable to grow varieties which, because of lack of firmness, would be valueless for shipment. The published bulletins of the experiment stations afford much light on the subject by indicating in a general way what the beha-

viour of varieties is in each section. These should be consulted, and also the reports of the State horticultural societies, many of which contain catalogues of the varieties known to succeed within their several districts. But most valuable of all will be found the experience of growers in the immediate vicinity. Their conclusions, though not always correct, are safest for the beginner, and he should only plant largely those varieties which they have found successful. The main planting should rarely consist of more than two varieties of each fruit, except in the case of the strawberry, where four or five sorts ripening in succession may often be profitably grown. New and untried sorts, though highly commended elsewhere, should be planted in an experimental way only, for but a small percentage of the varieties introduced prove equal in value to the standard market sorts at the time of their introduction.

WM. A. TAYLOR, in Year Book,
U. S. Dep't of Agriculture for 1895.

GROWING AND MARKETING OF TOMATOES.

BY MR. JOHN CRAIG, OTTAWA.

THE possibility of marketing Canadian Tomatoes profitably in England has aroused a spirit of inquiry among market gardners and fruit growers, relative to the best methods of growing the plants, packing the fruit, and the best varieties to cultivate for this special purpose. The following notes are prepared with a view of briefly answering these questions.

RAISING PLANTS.

The summer season of Ontario and Quebec is not long enough to admit of the profitable cultivation of tomatoes without the aid of a greenhouse, hot-bed, or window box in starting the plants in spring.

Soil for Seed Boxes.—The soil should not be too rich. A mellow loam of good quality, with sand added to the extent of one-fifth of the whole, will produce stronger and healthier plants than will the leaf mould one frequently meets with in the soil of window boxes. If a greenhouse is available the seed may be sown about the middle of March, or a month earlier if the plants are intended to serve the demands of the home market. A high temperature, 95 degrees to 70 degrees at night and 80 degrees to 85 degrees in the day time, will produce large, succulent, but tender plants. A too low temperature will produce stunted weaklings. Neither class is desirable. It is better, however, to have the temperature slightly too warm, than too cold, in consideration of the nature of the plant. Sow the seed thinly, in rows six inches apart, pressing the soil firmly over the rows. An ounce contains 8,000 to 10,000 seeds. The seedlings should be transplanted at least twice before setting them in the open field. This treatment gives strong, stocky plants. If grown *in the greenhouse* the seedlings should be "pricked" into "flats" (shallow boxes) soon after the true leaves appear, setting them two to three inches apart each way. From these "flats" the plants are removed when they begin to crowd each other, to the cold frame or hot bed, setting them six to eight inches apart each way, or further if the plants are large. By the middle—or in a backward season—the last week of May (in this section)

they will have made large, stocky plants and are ready to plant in the field. The sashes or other covers used to protect the frames should be kept off the frames to harden them, for some time previous to setting the plants out.

When the seed is sown directly *in the hot bed*, this should be done early in April. A strong, even heat is desirable, such as may be secured from a two-foot bed of horse manure. Sow the seed in four or five inches of soil, after the heat of the bed has subsided to 75 degrees. Additional cold frames should be provided for the reception of the plants when they are removed from the seed rows. Transplant twice, if possible, before setting in the field.

In Window Boxes.—Fairly good plants may be grown in boxes of soil, or in flower-pots placed in well-lighted rooms; but owing to the fluctuations of the temperature of the dwelling-house and the lack of light, the plants are often "drawn," stunted or otherwise injured. When any considerable number of plants is required a hot-bed should be employed. The remarks made above on transplanting from the seed rows, apply with equal force whether plants are grown in the greenhouse, in the hot-bed, or in the dwelling-house.

Field Culture.

Soil.—It is a mistake to plant tomatoes in poor soil. It is true that a warm and somewhat light soil will produce better plants and earlier fruit than a heavy clay, but a large crop of smooth, well-grown tomatoes need not be expected unless the soil is fairly well enriched. Poor soils produce early, but small, and often badly shaped and much wrinkled tomatoes. Sandy or light clay loams, well drained, and well manured, give the best results.

Preparing the Ground.—Plough deeply in the fall. In the spring apply 20 tons to 30 tons of barn-yard manure to the acre, plough again and harrow smooth two or three weeks before planting time. Harrow again just before marking out the rows, to destroy the first crop of weeds.

Setting the Plants.—It is better to set the plants in rows 5 x 3 feet apart than 4 x 4 feet apart each way, as the wider space facilitates the work of cultivating the plants and of picking the fruit. Planting will be expedited if a light furrow is opened in the line of each row.

Planting.—Before lifting the plants out of the boxes or frames, the soil in which they are growing should be thoroughly watered, so that it will be saturated to the depth of the lower extremities of the roots of the plants. A few hours after this is done the plants may be taken up with a ball of earth about the roots of each by using a sharp trowel, or a spade, if they are far enough apart to allow of the use of the latter implement. The plants should then be placed in carrying boxes, transported to the field in a cart or wheelbarrow and set in the freshly opened furrows. When planted, the ball of earth should be about an inch below the surface, and the soil firmly pressed about the lower roots. About three thousand plants are required to set each acre, when planted 5 x 3 feet apart. If badly grown and the plants are tall and spindling, they should be set in a slanting position with a view of covering the procumbent stem with soil so that it may strike root.

Cultivation.—Shallow and level cultivation should be given for a month after setting out. It is then advisable to attach the moulding wings to the cultivator and with these turn a slight furrow to the plants. The operation of hilling is finished by making with a hoe, about each plant, a broad sloping mound

two or three inches in height. This will tend to distribute the fruit and vines and by shedding rain will, to some extent, lessen the tendency to rot. After hilling, the level surface should be cultivated as long as it is possible to do so without injury to the plants. If growth is unsatisfactory it may be stimulated, by a light application to each plant of a mixture of muriate of potash or wood ashes and of nitrate of soda. Muriate of potash, 100 pounds, or wood ashes, 1,000 pounds, and nitrate of soda, 200 pounds per acre may generally be used with advantage. This mixture may best be applied by scattering it around each plant before hilling.

Training.—In field culture, it does not pay to train tomato plants to stakes or trellises. This system belongs to the garden of the amateur and may there be practised with economy as to space and satisfaction as to general results. In the field, some attention should be given towards securing a proper disposition of the naturally sprawling branches, to prevent too much interlacing and to secure their proper distribution.

PICKING AND PACKING.

Packing for the Home Market.—Pick the fruit when fully colored, being careful to avoid bruising it. Discard all ill-shapen or blemished specimens. The fruit should be carried in baskets to the sorting shed and then carefully packed in the shipping baskets or packages. Place the fruit in the basket with the stem end downwards, wiping such specimens as are soiled, finishing the package with a "smooth face." Strong baskets —veneer is better than the splint— should be used, and these covered with a stout frame like cover made of the veneer trimming material, but centered with leno, so that the fruit may be readily inspected.

Packing for Foreign Market.—If the fruit is intended for the European market, it should be picked when fully grown and just beginning to change color,—if it is to be forwarded in *thoroughly refrigerated compartments.* Partly colored specimens forwarded last year to Liverpool, with imperfect ice refrigeration, arrived in an over-ripe and unsatisfactory condition. If shipped by ordinary freight, which may be successfully done *with moderately cool compartments and good ventilation*, the fruit should be packed when fully developed, but when yet green in color and well "glazed." All fruit should be carefully graded as to size and with due regard to its characteristic color when mature. Scarlet and purplish red varieties should not be packed together in the same case.

PACKAGES.

Light, strong wooden ventilated cases are recommended. A case of the dimensions given below will hold about 20 lbs. of medium sized tomatoes in two rows — or layers — about four dozen tomatoes deep. The layers should be separated by a sheet of stiff cardboard, —unless each specimen is wrapped in tissue or light printers' paper,—even with this precaution the cardboard division will be found useful. To prevent the fruit from shaking, place a layer of clean "excelsior" over the fruit before nailing down the cover.

The words "Canadian Tomatoes" should be branded upon the ends of each case. The name and the address of the grower should appear printed on a sheet within.

Dimensions of Case Outside.—Length 22 inches; width 10 inches; depth 5½ inches. It should be provided with a partition placed crosswise in the middle. The boxes should be made of planed lumber, bass-wood preferable, with bored

holes in the ends, or slits along the corners to give ventilation. Boards of the following thicknesses may be used in the construction of this box. Ends and partition 5/8 inch; sides, top and bottom 3/8 inch. Ventilation may be provided for, by using slightly narrower side pieces than called for by the depth of the box—say 4¾ inches. The top and bottom pieces should come flush to the corners. This would leave a narrow ventilating slit at each corner without weakening the case to any extent.

VARIETIES.

If it is intended to ship the fruit to distant points, medium sized, smooth, solid varieties should be grown. Most of the extra early kinds are inclined to be rough or wrinkled. Among those that seem best suited for export purposes, as tested here, are:—Longkeeper (Thorburn), Stone (Livingston), Favourite (Livingston), Liberty Bell and Cook's Favourite. Dwarf Champion is a smooth desirable sort, but not very productive.

Bulletin Central Exper'l Farm.

PEACHES FOR THE ENGLISH MARKET,

Editor Canadian HORTICULTURIST.

DEAR SIR,—Our fruit-growing friends in other parts of the Empire are vigorously pushing their way into the English market. A recent number of the Gardener's Chronicle states that arrangements have been completed for the transportation of the Tasmanian apple crop. There will be nine cargoes in all, containing about 100,000 cases. A still more important point, as far as this district is concerned, is the fact, that a consignment of peaches has been received from the Cape, 400 boxes in all. The Chronicle adds: "These were fine in quality if not always large in size. Prices range from 6 to 10 shillings per box of 20. The lower price was for a consignment, part of which had got slightly bruised. The retail prices were from 9d. to 1s. each."

We must remember, of course, that this fruit arrived in mid-winter, and the English people are prepared to pay big prices for things out of season. At the same this is an encouraging object lesson for Canadian peach growers.

M. BURRELL.

St. Catharines, March 13, 1897.

ONIONS.

The keeping powers of onions raised by the aid of concentrated fertilizers, are not injured. For nine years in succession, on the same bed, I used Freeman's potato manure and bonedust in equal quantities at the rate of 1,000 lbs. to the acre; applying it broadcast on the land just before sowing, and working it in about three inches deep, by the use of a hand cultivator. A slight coating of rotted manure was dug in every fall. This also I know, when my friends would be complaining about the maggots eating up half their onions mine would be free from them. I have had both the yellow and white Southport Onions keep in perfect condition till the middle of June, particularly the white variety.

South London. C. J. F.

Flower Garden and Lawn.

HARDY PERENNIALS.—III.

(Continued from page 108.)

During the last few years there has been a great increase in the number of yellow perennial composites offered for sale, most of them wild flowers from Western America. While some of them are too coarse in habit to be desirable additions to the garden border, many of them are most effective and showy, and valuable as a source of cut flowers. Among them are several rudbeckias, of which R Newmanni is the best; several heleniums, including H. Autumneli, our common wild species, many sunflowers besides the one already noted. The following have proved most satisfactory with me.

Gaillardia Aristata—Blanket flower.—The original wild form from the Western Prairies, though a handsome flower of 2 to 3 inches diameter, has been immensely improved in size and color by cultivation, and is now one of our showest and most beautiful border plants. Some of the new varieties are 5 inches and over across, a few are all yellow, but most of them have the outer end of the rays yellow and the rest red, ranging from scarlet to the deepest marron. The best known form is G. Aristata grandiflora, the one generally grown and the only one offered in Canadian plant catalogues. Some United States dealers offer 7 or 8 sorts, but though an American flower, it is in Great Britain that its beauty is best appreciated. Messrs. Connell & Sons', Kent, catalogue, no less than 34 distinct named varieties, among which J. Kelway, Vivian Grey, Lorenzo and Wm. Kelway are most highly recommended. The named sorts are propagated by division of the roots, but a fine collection may be grown at small expense from the best seed, be careful and get seed of the perennial sorts, generally sold in mixture under the name of Gaillardia hybride maxima or G. hybrida grandiflora, some seedsmen list seed of the annual kinds as G. grandiflora.

Seed sown in May makes fine plants for transplanting the following spring. Plant out in clumps, it does not grow robust enough to make a good show in single plants. The flowers are on long naked stalk, and last a long time on the plant and after cutting. In continuous bloom last summer from June 21 to Oct. 11. Thrives best n a dry, sandy soil and sunny location.

FIG. 1100.—COREOPSIS LANCEOLATA.

Coreopsis lanceolata. — The best known of the clear yellow composites and probably the best of them all for cut flower purposes. The flowers are produced in such great profusion that they can be cut freely without robbing the plant. Though strictly a perennial, it blooms freely the first year, if seed is sown early in the spring. Last season I had abundance of flowers from August to Oct. 4, from spring sown seed. Though claimed to be quite hardy, I have had some difficulty in bringing them through the winter safely. Such a dense mass of leaves grow at the base of the stems, that they are apt to rot if not covered very lightly. The flowers are from 2 to 3 inches across, of a beautiful bright yellow on naked stalks about 4 in. long.

Heliopsis Pitcheriana—Introduced by Pitcher and Manda, three years ago, is evidently the same as *H. Scabra* of the botanies, a wild flower on the Western Prairies, is claimed by the introducers to be perfectly hardy, and to be much superior to Coreopsis lanceolata as a source of cut-flowers. The flowers are about the same shape and size, a little darker in color, and not so long stalked. The habit of the plant is much more robust, growing 2 to 3 feet high and as much across, leaves dark green, rather rough, somewhat heart-shaped, on long petioles; the flowers from the axils of the upper leaves are produced quite freely the whole summer. Last season plants from seed sown early in May, bloomed continuously from August 21 to October 10. Though the flower closely resembles Coreopsis lanceolata, the plant is so different in appearance that it is well worthy a place in the border.

Anthemis tinctoria — Yellow chamomile.—Is a native of England that is slowly finding its way into American plant catalogues, and being recognized as a very desirable border perennial. It is perfectly hardy and easily grown from seed. The flowers are bright yellow, about 2 inches across; in season from July to fall. The leaves are very finely divided—quite fern-like in appearance — light green above and downy beneath, forming a close mat about 8 inches high, from which the flower-stalks rise to a height of 18 or 20 inches. Though the whole plant is quite soft and delicate looking, it has most unusual powers of resisting frost. The past season it was the last perennial of my collection to succumb to the cold.

Plants from spring sown seed were in bloom from August till near the middle of November.

LILIUM SPECIOSUM.

THIS section of the lily family is often listed as L. Lancifolium. There are all of twenty sorts in commerce in America at present. They are favorably known throughout the north as high-class and very hardy lilies. The flowers of some surpass the Auratums in rich colorings, and rival them in fragrance, all flourish and increase where the beautiful but capricious Auratums would fail.

FIG. 1101.—SPECIOSUM ROSEUM.

The speciosums are natives of Japan, their time of blooming is from July to October, the flowers are drooping, the petals in all the varieties recurve so as to nearly touch the flower stem, showing off their rare color and shadings to perfection. The usual method of propagation is by division, one bulb planted in rich soil will have made quite a clump at the end of three growing seasons. When transplanted they should be given well enriched, deeply dug soil, the small bulbs and offsets had better be planted separately. It is rarely advisable to replant lilies of any kind oftener than once in three years.

Many recommend shade or partial shade to have these plants in their greatest beauty. The only advantage of shade seems to be the moisture that is nearly always present where there is shade. Varieties of Speciosum will do quite as well when fully exposed to the sun, if care is taken that the ground does not want for moisture.

Where the winters are severe the bulbs should always be planted in soil that is well drained and comparatively dry during their dormant season. Where the extreme cold renders protection absolutely necessary, forest leaves, held in place by a rough frame of boards, evergreen boughs, strawy manure, or anything, may be used that will prevent the ground about the bulbs from freezing and thawing.

Speciosum Roseum is certainly the most popular of all, the color is deep rose, distinctly spotted carmine, towards the centre of the flower the color shades to a frosty glistening white. The variety Rubrum is often catalogued, we have never found sufficient difference in the flowers to think of growing them separately.

Album is a white variety of chaste and pure color.

Monstrosum Album has flattened flower stems, which carry from thirty to fifty flowers. Its floriferousness under good culture is wonderful.

Melpomene and Opal are varieties of recent introduction that deserve special

mention. The former has thick waxy petals, a characteristic of all the Speciosums, the color is glistening white, spotted and clouded with rosy scarlet, each petal is bordered with the same color. Opal is still more grandly colored, the petals appear as if covered with hoar frost, delicately suffused and heavily spotted with crimson, and tipped with white. These two are still held at an almost prohibitive figure.

WEBSTER BROS.

Hamilton, Ont.

MANURE FOR FLOWER BEDS.

FRESH compost can only be used with benefit as a mulch in late autumn to prevent the heaving of newly set plants. If compost is to be applied to bulbs or the roots of perennials, it should be at least a year old, and thoroughly rotted. A cow and a flower bed travel well together, provided they are kept in separate compartments. The barn yard muck where cows are kept is an excellent plant food; in our estimation it is the best, and whenever we can obtain plenty of it we wish for no other. That part of the enclosure which is free from coarse straw and stable litter, in which the animals thoroughly pulverize their droppings with their feet and incorporate them with the soil underneath contains the correct thing. Scrape this into heaps with hoe or rake, take it to your flower beds and spread it over them in the fall, be liberal with it, don't be afraid, and you will marvel the following summer at the wonders of floral creation. The effect is astonishing. You need no longer lament that your flowers are not as fine as grandmother's were a half century ago. Your plants will receive new life, and their vigorous growth will defy the ravages of the insect world. It will make them more floriferous, and the brilliancy of the colors will surprise you.

The leachings of manure water that accumulate in a depression of the barn yard are a treasure, and should be utilized. Carry them to your rose and hydrangea beds after a heavy rain, apply the liquid with a sprinkling can with the rose removed; there let the solution percolate through the soil down to the thread-like, fibrous roots, where nature's alchemist will assimilate them, and mark the result.

If all the barn yard leachings that are now running to waste throughout the country could be utilized in this way, two roses would bloom instead of one, our hydrangeas would have heads twice as large, and other plants would be equally floriferous. Barn yard leachings can be applied with equal benefit to all perennial plants and small fruits. Celery fairly revels in it, and we are safe in saying that a corn stalk would produce twice as much corn.

If we persist in setting out flowering plants and watch them slowly starving to death without making even the feeblest effort to succor them, we will never be successful floriculturists.—Rept. Pa. Hort. Soc., '95.

EVERY GARDEN SHOULD HAVE ROSES.

I HAVE often asked the question "Why have you no roses?" "Oh, my soil is far too light and all rose growers, when writing, say the soil must be a strong clay loam." True, roses do best in such soil if well drained. A few years ago some friends from London happened to call on me at Delaware one fine morning when I had about seventy rose bushes in full bloom, the first word spoken was, "We did not know it was possible to grow such roses on soil so sandy and poor as we know yours was; how do you manage to get such roses?" By applying every fall a good coating of cow manure leaving it on the surface till the spring, then dig it in with a fork, and before raking the ground apply bone-dust till the ground is fairly white all around the bushes, prune the bushes as soon as the buds begin to open, by doing this every year I find my bushes growing stronger and giving me plenty of fine roses, but no one can have good roses without manure, and a rigid system of pruning; also care must be atken to allow no insect pests to get the upper hand, for if the foliga is destroyed the whole plant receives a very severe shock. A few words about small roses or "bantlings," as your friend Mr. O. G. Johnstone calls them, he also states "One honest two-year old pot-grown rose is worth fifty of the baby roses sent out by mail." He must not forget roses arelike men, in that both must be babies at the starting point. Now, I know that many persons, when reading a catalogue they see a lovely picture of roses, and they see two year old plants quoted at $4.50 per dozen, "Oh, I would like a dozen, but I cannot afford it," and so on year after year, and no roses.

During the last twenty-five years I have grown many roses, and as a rule always buy small plants My plan is to buy say one dozen plants for which I pay $1.00. I get them in May, and plant them in a bed in the kitchen garden where I know the ground is rich, about twenty-inches apart each way, keep the ground free from weeds and loose till November. As soon as you see any buds forming, take your knife and cut the branch off about three inches below the bud, by so doing you will find you have by November a fine lot of stocky bushes.

In the spring as soon as the ground is fit to work, dig your holes in your flower border and take up each bush with a shovel with as much earth as will remain on the roots, and see that the earth is made solid round the roots, then with a sharp knife cut back all growth to within six or eight inches, and if your soil is good, you may be sure of good roses. Last May I planted out four doz. Baby roses, and every one grew, and I feel confident that they will out grow

any pot grown plant because they will receive no check in moving. So friends with a little care and trouble for one summer you can have roses at a very small outlay, only get your plants from some reliable florist and have them come by express. C. J. F.

South London.

THE RAISING AND CULTIVATION OF ANNUAL FLOWERING PLANTS FOR THE GARDEN.

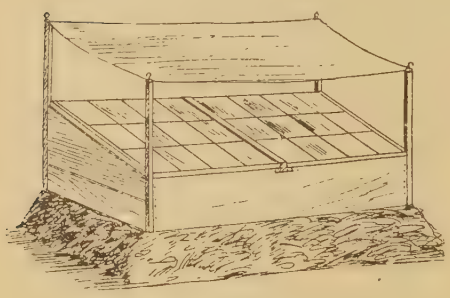


Fig. 1102.—Hot-bed Frame.

THESE can be obtained at much less expense and with far less attention and trouble than plants which have to be kept over and propagated from cuttings; and for the amount of bloom, and the bright appearance they give during nearly the whole flower-producing season, they well deserve to have the care bestowed on them which they require to bring them to perfection. Every one with a garden of any pretension has a corner where some of these beautiful annuals could be accommodated, and where they would well repay any attention given to them. This short paper is intended for amateurs in the flower growing line, and I will give a few plain directions of how to make a hotbed for the tender annuals (with a list of those most suitable), the manner in which the seed should be sown and the attention required in the hotbed, the transplanting of such as require it in the hotbed, and their final transplanting to where they are to remain for the season, and flower. The preparation of the soil for this as for any other crop is most important, and with good soil and good cultivation the results will be satisfactory. The hotbed may be of one or more sashes according to the number of plants required, and in any case the preparation of the material "hot stable manure" is the same. One chief mistake amongst amateur hotbed gardeners is in commencing too soon in the season. The earlier you start the more difficulties you have to contend with; and as the greater number have other vocations during the day to attend to, courting any more difficulties than can be avoided is not to be thought of. The material generally used for hotbed making is stable manure. It should be collected about two weeks before the time for building the hotbed, thrown into a heap and allowed to heat slightly before giving the whole a turn, that is, commence at one end or side and carefully mix all the material together by turning the whole pile over on to another part of the ground contiguous. In doing this, all the outside material should be placed in the centre of the pile, thereby making it as uniform as possible. About the beginning of April is quite soon enough to collect the material, and in about two weeks with frequent turnings will be in a good shape to build the bed. About two ordinary cart loads of the common stable manure usually obtainable will be sufficient for each sash of your bed. With proper

turnings this will be reduced to about one common cart load by the time it is required for the bed. It might be as well to mention here that in turning over the material it may be necessary to add water to make it heat properly. There should never be any dry patches (fire-fang) allowed in hotbed material, or in fact in any material required to be used as manure, it is useless afterwards.

The material to form the hotbed being now, say about the middle of April, in first-class condition, turn the whole over on to the place, making it one foot larger each way than the box to be placed on it, shaking and mixing the whole as it is put on. Make it firm with repeated taps with the back of the fork; when finished, the manure should be firm enough to carry a man without his foot sinking more than about three inches into it. This sort of a bed will not blaze up and burn everything that will be sown in it; then ultimately you might trace the cause of all the disappointments of your seedsman, who, honest man, does not know, and should not be blamed when perfectly innocent, for the disappointments sure to follow in trying to grow seeds in a place, nine times out of ten, constructed on improved principles to kill everything of vegetable nature. Very few seeds will stand more than 90°; and almost all annuals will succeed much better if never subjected to a higher bottom heat than 75°. The soil is another considera tion of some importance; not that it requires to be extra good, but light and friable being more suitable. In fact, any good garden soil will answer very well with the addition of sand if of a stiff nature to make it free and open. The quantity has more to do with success than quality, and in no case should less than four inches to six inches be used. The sorts of annuals requiring the greatest heat might be sown on the part where the four inches is used, and plants of a hardier nature, such as stocks, asters, etc, sown on the thicker part of the bed. Shading, airing, and watering being about all that is required after sowing until some of the small seedlings may require to have a first transplanting. Many plants are improved by this transplanting, giving them not only more root, but more head space. In fact, it is about impossible to produce good healthy plants of many of the different sorts of both flowers and vegetables without transplanting them. Shading the hotbed before the seedlings appear above the soil is good practice, inasmuch as plants do not require light to germinate, and it also has the further advantage of retaining the moisture, or at least not allowing the soil to become parched by the sun. Watering should be done only when necessary, and this done efficiently through a fine rosed watering pot, as many of the small seed or plants would be washed out if done too roughly. Ventilation is also one of the imperative attentions demanded to secure success in the hotbed. It is better to err on the safe side here; as to neglect giving air for a couple of hours on a sunny forenoon would most likely finish everything The giving of air less or more, according to the state of the weather must by no means be neglected. —Report Montreal Hort. Soc.

Our Affiliated Societies.

PARIS.—Mr. C. H. Roberts, the energetic Secretary of this Society, sends us a copy of his Annual Report. The finances are in a very encouraging condition, there being a balance in hand of $100, and the portion of the grant coming to them amounting to $140 per annum. The Society is distributing begonias, climbing roses, altheas, and raspberries. It also gave prizes to the scholars of the public school for the best essays on "Horticulture"; the essays were read, and the prize given in public. At the Agricultural Society Show prizes were given for the best design for a rural garden, and also for floral exhibits; the Horticultural Society also made an exhibit of named varieties of apples. At the Paris Cemetery the Society made a fine bed of foliage plants, which was much admired. Mr. Beadle's lecture was much appreciated.

NAPANEE HORTICULTURAL SOCIETY.—Our spring distribution is as follows: Membership in Fruit Growers' Association (including CANADIAN HORTICULTURIST); subscription to Mayflower; sweet pea seed, 4 lbs.; aster seed, 1 oz.; hollyhock seed, 1 oz.; Poppy seed, 1 oz.; 65 brugmansia plants; 65 Cannas, very choice; 400 gladioli, also very choice.

J. E. HERRING, *Sec.-Treas.*

WOODSTOCK.—Renewed life and vigor was imparted to the Woodstock Horticultural Society at its regular monthly meeting recently. There was a good attendance, and the two hours spent in the discussion of fruit topics must have been of great value to those interested in horticulture.

Vice-President Pattullo presided in the absence of the president, D. W. Karn.

James S. Scarf, who was the Woodstock delegate to the Ontario Fruit Growers' Association convention at Kingston, gave an able and exhaustive report of the many things done, seen and heard at the Kingston gathering, and Frank Harris gave an interesting address on the culture of raspberries. Mr. Harris is an experienced grower, but as he stated in his address, he has never yet been able to raise raspberries at less than 5½c. per box.

At the next meeting it is likely that the Society will discuss some system of park ornamentation.

Messrs. Scarf, Snelgrove, T. H. Parker, Frank Harris, and the Secretary were appointed a committee to assist the Agricultural Society in the revision of the lists and the arranging of the horticultural exhibits.

Twenty-five dollars was devoted to the purchase of premiums consisting of flowers and seeds.

An effort will be made to increase the membership, a task which should be an easy one if all the meetings are made as interesting as the last.

R. B. THORNTON, *Sec.*

DESERONTO HORTICULTURAL SOCIETY.—The first annual meeting of this society was held in the Town Hall, and was quite a success, all present seeming to take quite an interest in the subject of horticulture. The principal business of the meeting was the election of officers for the ensuing year. Mrs. E. Walter Rathbun was unanimously elected President; J. J. Keator,

Vice-President; Rev. J. H. H. Coleman, 2nd Vice-President. The Board of Directors was elected by ballot, and is as follows: Mrs E. W. Rathbun, R. W. Lloyd, H. Townsend, C. Chamberlain, Mrs. W. S. McTavish, C. Bennett, W. G. Egar, E. J. Snarr, D. McClew. D. McClew was appointed Secretary-Treasurer and G. W. Wright and E A Rixon, auditors. From the interest manifested it is easy to predict a bright future for the society.

SMITH'S FALLS.—We had a very good meeting recently, and Prof. Craig spoke for two hours and held the attention of the audience the whole time. I think he was much pleased with the interest shown and seemed surprised that our society had so many members. We hope to have a few more yet before winter closes.

ROBT. GRAHAM, *Sec.*,
Smith's Falls.

LINDSAY.—We are much obliged to the Fruit Growers Association for send ing us Prof. Craig, for he gave us so much valuable information on Flowers in the Home, and the planting of trees and shrubs on the lawn. He also gave us some fine stereopticon views. The instrument was handled by Mr. Stevens of the Collegiate Institute staff. There were about one hundred and fifty present. The President, Mr. W. M. Robson, was chairman.

F. FRAMPTON, *Sec.*

GRIMSBY.— On Tuesday evening, March 2nd, Dr. Beadle lectured before the Grimsby Horticultural Society in Society Hall. Mr. E. J. Palmer, the President, occupied the chair. The doctor spoke on "Herbaceous Perennials, and among others mentioned the following as desirable for succession: Acute leaved Hepatica, Adonis Vernalis, Wood Anemone, (nemorosa) Aquilegia Canadensis, Astilbe, Japonica, St. Bruno's lily, Coreopsis lanceolata, Hybrid Pyrethrum, Anemone Japonica (red or white), Boltonea. He advised planting the Snowdrop bulb in September, and sweet peas also in the fall, in drills about five inches deep in the richest soil possible. Cover with about three inches of soil and then fill up in spring as they grow; Cupid sweet pea was white, a pretty dwarf, but the long stem varieties better for cutting.

TREES FOR THE LAWN. — To have the sward a brilliant green frequent rolling is necessary after the seed has been planted to compact the soil and secure and even growth. The speaker noticed that people generally tend to the artificial in planting their lawn; because there is a place for a flower bed or a clump of trees on one side that is no reason why another should be put on the other side with mathematical precision, Straight lines should be avoided—he liked to see borders assume a wavy outline, flowers massed for color effects, and trees and shrubs planted in little clumps. He advised his hearers to have nothing to do with the weeping willow—it might have a place in graveyards or along brooks, but the lawn is no place for it. Another tree that should be banished is the Manitoba Maple; it is decidedly a cheap tree and has nothing to recommnd it but its rapid growth. Graceful elm and hardy maple saplings fresh from the bush should be planted, and we might add that the cutting of the top is not a wise act, as it spoils the symmetry of the tree and rot eventually sets in near the cut. The Lombardy poplars are sometimes planted with advantage, but are not

graceful—a row of them look like exclamation points against the sky line.

The cut-leaf birch is a better tree—it is not long-lived, and is past its meridian at 30 years—but is handsome and a fast grower. The Sweedler's maple is a magnificent foliage tree, bearing rich blood-red leaves, and grows to a fair size.—JOHN CRAIG, before Port Hope Society.

FERTILIZERS FOR HOUSE PLANTS.—The judicious use of fertilizers should be referred to. He had told them that plants needed additional food when about to flower. He might say that certain fertilizers sold for the purpose were not immediately available for the supply of plant food; growers should remember that fact. One of the most valuable fertilizers is nitrate of soda, or guano, found in Chili, used in the proportion of one ounce to three gallons of water; it should be used freely twice a week. Bone meal is also good, but must be well soaked first and used in the proportion of a teaspoonful to a gallon of water. When plants fail to thrive under good conditions take them out of the pots and look at the soil—often the earth worm is the cause of the trouble. To keep them out take a lump of lime about the size of a tea cup, slacken in five gallons of water, and use freely at times. The latter remedy is also excellent for lawns that are troubled with worms. — MR. CRAIG, before Lindsay Horticultural Society.

DAHLIAS.

If large tubers, divide, leaving one or two eyes. Plant in boxes last week in March, in not very rich earth. Water well and keep warm until started, then give plenty of fresh air, but not too much heat, or plants will become rank instead of strong and study. Aim rather at producing strong roots. After danger of frost is over dig a hole, at least 18 inches deep, mix in old, well-rotted, cow manure. Half is not too much. Put a little earth in centre, set plant in it lightly and carefully, cover sprouts and all to a depth of 5 inches. Put in a stake at once, in case of frost, so that the exact place may be known to cover. They will require no watering until above ground, but afterwards must be given at least a full pail of water each evening during the summer, watering leaves and all; soap suds are good, mulch during very warm weather. Dahlias must have very rich earth and plenty of water to bring them to perfection. They like the early morning sun, but not during the heat of the day. Stake well and tie with wide cotton strings. In autumn cut off stalks within one foot of ground, then dig round root, lift carefully without breaking, and raise them whole, leave for a short time to dry, then place them whole in a box in the cellar and keep dry until following spring.

T. A. W.

Napanee.

CANNAS.—Unless very old roots do not divide, plant in boxes about 1st of April. 1st of June plant out of doors in very rich soil. They do best in a sunny place, but should not be exposed to strong winds. Before the stalks are badly frozen in October cut within 4 inches of the ground and store in the clumps in boxes of sand in a rather warm place, not below 40 degrees. Water slightly at intervals during winter. They can be grown as pot plant also.

T. A. W.

Napanee.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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Notes and Comments.

THE ORILLIA PACKET of March 6th chronicles the death of Mr. John Cuppage, for many years a faithful agent of this Society at Orillia. He was the son of a Major-General in the East India army, and has three brothers Lieutenant-Colonels. Mr. Cuppage was a well-read man, public spirited to a high degree, and highly esteemed by those who knew him.

THE SAN JOSE SCALE has appeared in Michigan. Professor Barrows has found it on the borders of Allegan and Ottawa counties, infesting pear, plum, cherry, peach and apple trees. It was brought there some years ago, a six pear tree from New Jersey.

PROPER CARRIAGE OF APPLES ON SHIPBOARD.—At a meeting of fruit-growers at Grimsby, the following resolution was unanimously carried :—

Resolved, That this meeting of farmers and fruit-growers is firmly convinced that some action should be taken to secure safe transportation of our apples to European markets, for we believe that had such been assured us in the past the crop of 1896 might have been marketed there at such prices as would have nearly doubled the net proceeds.

We believe that there is no reason for our apples shipped in sound condition, to be landed in England in bad order, if steamship companies would make a very little effort to provide ventilation in the ship hold, where the apples are carried. All that is required is simply to maintain them during the entire voyage, in a temperature as cool as the ocean air in October and November.

DR. WM. SAUNDERS, of Ottawa, has just returned from Boston, where he delivered a lecture before the Massachusetts Horticultural Society on the 13th of March. His subject was, "Horticulture in Canada," and it was illustrated with stereopticon illustrations. An interesting summary of the lecture appeared in the Boston Evening Transcript.

THE HORTICULTURAL SOCIETIES visited by Mr. John Craig in his recent lecture tour under the auspices of our Association, speak in the highest terms of the excellence of his addresses.

Question Drawer.

Fruit Samples.

926. SIR,—At the request of W. Fisher, Orillia, I send you a sample of a seedling dessert apple, grown by him, and would be obliged for your opinion.

G. H. HALL, *Orillia.*

The apple is rather pretty in appearance. Medium in size, conical, of excellent flavor, and probably would be a first-class winter dessert apple for the north.

Shortening-in Pear Growth.

927. SIR,—Is it advisable to cut back or shorten-in about one-half or two-thirds of last year's growth of young bearing pear trees in the spring, in order to prevent their growing too tall?

R. BURNS, *Parkhill, Ont.*

Yes, prune your trees while growing into the shape you want to have them, when they reach maturity.

Ashes for Pear Trees.

928. SIR, — What quantity per tree of unleached wood ashes would you advise me to apply to pear trees, ten or fifteen years old?

G. H. NIXON, *Hyde Park.*

Twenty-five or thirty pounds per tree, should afford sufficient potash for full-grown pear trees. Of course they should have nitrogen and available phosphoric acid in some form, also.

Ashes and Manure.

929. SIR, — Should I apply ashes and manure at the same time?

G. H. N.

There is no objection to this; the evil consists in leaving them mixed together in the same pile.

The Madison Plum.

930. Would you recommend the Madison plum for the County of Middlesex?

G. H. N.

Will someone give his experience?

Nitrate of Soda.

931. SIR,—Will you kindly inform me the best market to buy nitrate of soda in, and also other fertilizers? and you will oblige

J. H. WIGLE, *Leamington, Ont.*

Japan Lilac.

932. SIR,—Is this perfectly hardy, and is it sometimes grown in the hothouse?

MRS. RAWSON, *Burlington.*

Reply by Prof. H. L. Hutt, O.A.C., Guelph.

I cannot speak from my own experience, as to the hardiness of this variety, as it is not in our collection; but I see that Prof. Saunders in his report for 1893, speaks of it being hardy at Ottawa, so I would suppose there would be no difficulty in growing it at Burlington.

I have not heard of its being grown in the hothouse in this country, although I do not doubt it might be. In England and France the lilac is extensively forced during the winter in houses where the light is excluded. The flowers are thus blanched pure white, and are in great demand for making bouquets, etc. The disadvantage of this method is the impossibility of having foliage to accompany the flowers. Leaves from other plants grown in the light have to be substituted.

The Onion Maggot.

933. SIR,—What is the best insecticide for the onion maggot?

R. BURNS, *Parkhill.*

We cannot answer our correspondent better than by quoting from the Hatch

Experiment Station Bulletin, concerning the habits of this insect, and the best methods of destroying it.

Its life history is briefly as follows :— The eggs (Fig. 1103, *a* natural size and

FIG. 1103.—*a*, eggs of onion maggot, natural size ; *b*, eggs enlarged ; *c*, larva of natural size ; *d*, larva enlarged ; *e*, puparium of natural size ; *f*, puparium enlarged

b enlarged) which are laid on the leaves near the ground, are white, smooth, somewhat oval in outline and about one twenty-fifth of an inch long. Usually not more than half a dozen are laid on a single plant, and they hatch in about a week from the time they are laid. The young larva, as soon as hatched, burrows downward within the sheath, leaving a streak of a pale green color to indicate its path, and making its way into the root (Fig. 1104) devours all except the outer skin. When the bulb of the plant has begun to form, several of the larva may be found feeding in company in it, and after it has been consumed they desert it for another, and still others in succession. The larvæ reach full growth in about two weeks, when they appear as shown in Fig. 1103, *c*, natural size, *d*, enlarged. The smaller end, which is the head, is armed with a pair of black, hook-like jaws. The opposite end is cut off ob-

FIG. 1104. — Showing the eggs and the larva at work on the onion plant.

liquely, and there is a pair of small, brown tubercles near the middle, and eight tooth-like projections around the edge.

The larva usually leaves the onion and transforms to pupæ in the ground outside. The puparium is shown of the natural size at *e* and enlarged at *f*. It does not differ very much in form from the larva, but the skin has hardened and changed to a chestnut brown color, within which the true pupa is contained. They remain in the pupa state about two weeks in the summer, when the perfect flies (Fig. 1105) emerge ; after pairing, the female deposits her eggs for another generation. The winter is passed in the pupa state, and the flies emerge in the early part of June, or about the time the young onions are sufficiently grown to furnish food for the young maggots.

The following preventives and remedies have been suggested :—

Instead of sowing onion seed in rows, where the young seedlings grow in contact, or nearly so, giving every facility for passing from one to another, they should be grown in hills, so that the larvæ cannot make their way from one hill to the other.

Scattering dry unleached wood ashes over the beds as soon as the plants are up, while they are yet wet with dew, and continuing this as often as once a week through the month of June, is said to prevent the deposit of eggs on the plants.

Planting the onions in a new place as remote as possible from where they were grown the previous year, has been found useful, as the flies are not supposed to migrate very far.

Pulverized gas-lime scattered along between the rows has been found useful in keeping the flies away.

FIG. 1105.—THE PERFECT INSECT OR FLY.

Watering with the liquid from pig-pens, collected in a tank provided for the purpose, was found by Miss Ormerod to be a better preventive than the gas-lime. It is recommended to run a roller over the ground a few times after the seed has been sown, thus compacting the soil so that the maggots cannot make their way through it from one plant to another.

Water raised nearly to the boiling point and poured along the rows from a tea-kettle or other convenient vessel, has proved destructive to the maggots, without injury to the plants. The water should be applied so as to go directly to the bulbs and not to the leaves.

Most excellent results have been obtained in England by growing onions in trenches, and as the bulbs grew, the earth was worked down upon them so as to keep them buried throughout the season. The onion bulbs should be covered with earth up to the neck, or even higher, so that the fly cannot get at them to lay her eggs.

When the onions have been attacked, and show it by wilting and changing color, they should either be taken up with a trowel and burned, or else a little dilute carbolic acid or kerosene oil should be dropped on the infested plants, to run down around them and destroy the maggots in the root and in the soil around them.

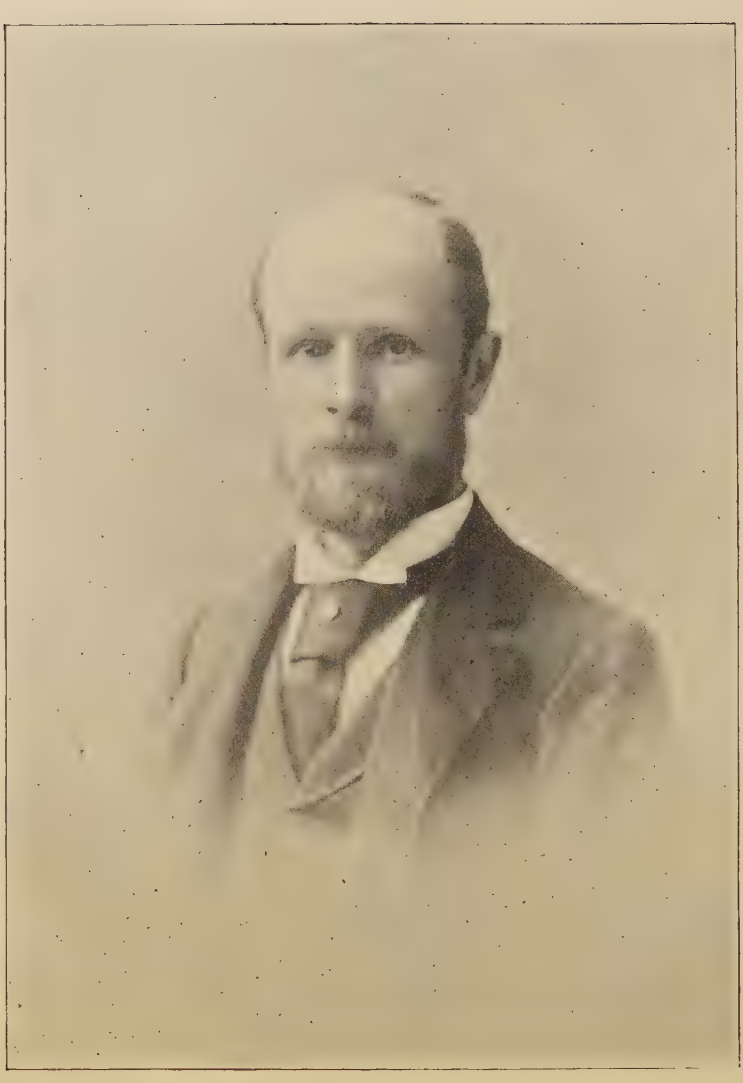
Smilax.

934. SIR,—In your next issue of your valuable Journal will you kindly inform me how to cultivate Smilax. Does it require very rich soil? I have raised several plants from seed, but after reaching about a foot or more in height, the foliage and stems begiu to get brown and they die down I water moderately, as most other plants.

R. H. LIGHT, *Kingston.*

Reply by John Craig, Central Experimental Farm.

Smilax is probably one of the most useful of all plants grown for foliage by the florist. It requires a full year to obtain a crop. The ordinary method of procedure is to sow the seed in January or February. When the seedlings have grown to a height of a few inches, they are set in 3-inch pots and grown in this way for some months. In August or September the plants are set in benches, 6 to 8 inches apart. The Smilax should be ready for cutting in the month of January following. If it is cut down at this time, a second crop will be ready in March or April. The best soil for growing Smilax is one light, but rich in character. It is important that the plant should be syringed frequently with water (daily), and after being set in the bench, frequent applications of manure water are necessary. Growers should remember that the foliage is unusually sensitive, and tobacco smoke, such as is used to keep down green fly, proves very injurious to Smilax. It is better, therefore, to use the tobacco in the liquidform.



ROBERT B. WHYTE.

THE
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ROBERT B. WHYTE.

THE subject of this sketch, who has well represented district No. 2 since December, 1893, was born at Perth in 1850. His father, J. G. Whyte, came from Scotland some time prior to that date, and has ever since been closely identified with and deeply interested in the development of the agricultural and industrial interests of the Ottawa Valley. J. G. Whyte has always, like many Scotchmen, been a student and reader. He educated his children principally (Robert entirely) in their own home. His system, while unique, had the effect, at least, of making self-reliant men with a decided leaning towards and a love for the natural sciences.

Our friend began to take an interest in gardening, and also began to make a study of the flora of Ottawa in 1866. This latter work he pursued very perseveringly, and his private herbarium is now one of the most complete in the City of Ottawa, and probably Eastern Ontario. With systematic botany, Mr. Whyte took up the study of geology and chemistry. It was, therefore, to be expected that he should be a prime mover in the formation of a Field Naturalist Club in Ottawa. The Club was organized in 1879, and is now recognized as one of the leading Natural History Societies of the Continent. Mr. Whyte was one of its first presidents. In 1875 Mr. Whyte purchased his present residence in that portion of Ottawa city known as Sandy Hill, and with an acre of ground at his disposal, seriously laid himself out to satiate his gardening desires. For twenty years afterwards the entire manual work of the garden was done by himself; unfortunately two years ago an accident incapacitated him to a certain extent, and he has been since then unable to do the same amount of work as in former years. We sincerely trust that he will soon be restored to his wonted activity. Mr. Whyte's specialties have been raspberries, gooseberries and currants and plums, of which he has had large collections, although at the same

time he has tested a remarkably large number of the tree fruits, considering his limited space. Latterly, perennials and bulbs have replaced some of the fruits and vegetables in his garden, and the interesting series of articles just concluded in the HORTICULTURIST from the pen of Mr. Whyte, giving notes on perennials, are the result of personal experience and observation, therefore all the more valuable. Mr. Whyte's garden is well known to the Ottawa public, especially during raspberry and gooseberry season. Information is always freely given, and fruits and plants as freely available to the interested and the would be fruit grower. Mr. Whyte's connection with O. F. G. A. began with the first year of the publication of the HORTICULTURIST. In 1892 he took an active part in the organization of the Ottawa Horticultural Society (membership 165) of which he is at the present time First Vice-President. As an amateur photographer, Mr. Whyte has also won considerable distinction. He was instrumental in organizing the Ottawa Camera Club, and filled the President's chair for two years. Thus far, Mr. Whyte, although a ready speaker, has not contributed largely to Horticultural or Scientific journals, but now that he has made such a good beginning, we trust his name will be seen frequently among those who contribute to the columns of the HORTICULTURIST. It is somewhat remarkable that many of our greatest enthusiasts in fruit culture, and many of those who oftentimes exercise the widest influence upon their fellows in this connection are men whose daily avocations lead them in channels quite different from that of fruit growing. Mr. Whyte owns and carries on successfully the business of J G. Whyte & Son, wholesale stationery. That he has been able to do so much work in gardening and in studying natural sciences is due to his untiring energy and diligence, and also to the encouragement accorded him by his wife and children, who are all lovers of plant life. We trust he will be spared to advance the Horticultural interests of Eastern Ontario, and to represent this section in the Councils of the Association for many years to come.

BABY ROSES.

NOTICING a very instructive article in your valuable Monthly in your issue for February, on "The Amateurs' Rose Garden," by O. G. Johnston, of Kingston, the only part of that interesting article that I think is open to criticism, is where it treats on "Baby Roses." In the spring of '96 I purchased from Webster Bros., Hamilton, 20 roses for $1. I had them sent by express, with soil on roots as taken out of thumb pots. No $1 worth of plants gave me more satisfaction than those 20 bantling roses. They all flowered during summer and fall up till frost came. I had some fine blooms on Viscountess, Zolkstone, Kaiserin, Augusta, Victoria, etc.

And when I covered up my 20 "Babys" for the winter, I had nice stocky plants. I agree with Mr. Johnston that 2 year old plants will give more and better bloom, but still I would not give Mr. Johnston my 20 "Babys" for one of his honest grown 2 year olds. I would say to all amateurs, don't be afraid to invest $1 in 20 of the bantling roses, as the attending and caring for these 20 "Babys" will be an object lesson to them in horticulture.

With your permission, I may have reason to refer to my 20 "Babys" when I take their winter clothing off.

WM. MCCREACH.

The Cemetery, Kincardine.

MR. JONATHAN CARPENTER'S FRUIT FARM.

IN Mr. Carpenter we have a representation of the first settlers in the Winona section. The family came to America in 1638, and in 1776 to Canada, being one of the well-known U. E. loyalists, and for that reason given a grant of land, near the present site of Mr. Carpenter's home.

Until quite recently Mr. Carpenter counted far more upon his large stock of fine cattle and horses than upon his fruit for an income. Even yet, he has about sixty head, but every year he devotes more and more attention to his fruit, and less and less to stock raising. The house was built in 1840 (Fig. 1106), and is still in excellent condition. It is in the old Colonial style in which so many of the early houses in Ontario were built. The large tree, on the right which overtops the house is a magnificent specimen of Catalpa. Nearer the house is a fine Mountain ash and a large Juniper; also a fine sample of Box, about five feet in height and nearly as much in diameter. The long avenue of Norway Spruce (Fig. 1107), by which one approaches the house, is also very pretty, and suggests a style of ornamentation of the home grounds quite easily worked out, but after all seldom thought of by our country people.

FIG. 1106.—RESIDENCE OF MR. JONATHAN CARPENTER.

As we remarked above, Mr. Carpenter has of late become much interested in fruit culture, especially in the peach, and in planting out an orchard of thirty-five acres, he devoted the greater portion to this queen of fruits. His situation, on a point jutting into Lake Ontario, with water on three sides, is unusually free from frosts, while its isolation perhaps explains its immunity from Yellows.

The varieties are chiefly as follows in

Fig. 1107.—Avenue of Norway Spruce.

order of ripening: — *Alexander and Rivers*, varieties that succeed well, and give a crop almost annually; *Yellow St. John*, one of the finest of early peaches for Southern Ontario, more productive than Alexander or Crawford. Six year old trees have borne three crops, and in 1896 averaged five baskets per tree; they also command a higher price than even the Crawford, probably because earlier. *Early Crawford* does finely, six year old trees average four or five baskets per tree annually, of magnificent samples; *Crosby* and *Longhurst* and *Bowslaugh's Late* come next, and are excellent varieties. The two latter are, however, so much alike that Mr. Carpenter does not see any choice between them. The Crosby sells the best of the three in his experience. *Smock* is his best late variety.

The secret of Mr. Carpenter's success with his peach orchard, aside from his soil, is manure and cultivation; he applies a heavy dressing of barnyard manure and ashes annually, and gives his orchard constant cultivation, until the fruit is nearly ripe.

Besides his peaches, he has about 600 pear trees, 300 plum trees, and a small vineyard.

Palms.—The cooler varieties, usually grown in houses, like a night temperature of 55 degrees or ten degrees higher; a north or east window is best; Repot only when ball is crowded with roots, and only in spring or summer. Sponge foliage frequently with clean water.

NARCISSUS IN THE WINDOW.

THE Narcissus is a very popular flower; and justly so, as it is extremely pretty, is easy to cultivate, and its price is within the reach of all. But the time during which it can be had in bloom out of doors is quite short. It is only about a part of the winter, as Paper White can be had in bloom by Christmas, and there is an almost unlimited number of varieties to flower between its season and that of Poeticus, which is quite late. They are very easily grown in the house, and flowers last much longer than when

FIG. 1108.—NARCISSUS HORSFIELDII.
(From Photograph by H. Johnson.)

month from the time the earliest one comes into bloom until the last to open its beautiful flowers is gone. And then sometimes we have a few days of hot sunshine that completely ruins the flowers; for this lovely flower cannot endure much hot sunshine. But there is no reason why we cannot have them blooming in-doors during the greater in the garden. I have tried a number of varieties in the window, and all with one exception were successfully grown. We generally plant them in ordinary soil from the garden, which is a sandy loam, leaving about one-third of the bulb above ground. They are then well-watered, and put away into a dark place where they are not allowed to get

dry. The bulbs can be planted quite closely—four or five in a six-inch pot, according to size; there are five in the pot of Horsfieldii shown in the picture. In about six weeks they are nicely rooted, and can then be brought to the light, as required. We always keep them in a cool window, and they are liberally supplied with water. No attempt whatever is made to *force* them to grow; they are simply left to start when they are ready. After the flowers are out they should be kept as cool as possible; by doing so each bloom will last for about two weeks and a-half.

Simcoe. HENRY JOHNSON.

AN ITALIAN VILLA.

THIRTY or forty years ago the Italian style of architecture was quite popular, and some of the finest houses in Toronto and Hamilton, and probably in most other cities in Ontario, were built in this style. It had many points of excellence, for additions can easily be made to the building without marring the unity of the design; while the arcades, balconies and projecting eaves gave character to a style which was deservedly popular for country residences, because harmonizing so well in picturesque beauty with the rural landscape.

Our illustration shows an Italian villa, with charming surroundings, chief among which is the river bank, along which a delightful walk leads you along to the artistic summer house, so situated as to command a charming view of the whole surrounding scenery. Such a river or lake bank is just an ideal situation for building a beautiful home. The house itself is not everything; its surroundings are of still more importance, and should always be made the most of, never hiding a beautiful landscape with trees or shrubs. And yet we have often noticed the most charming scenery shut out from view by Norway spruce trees, or, still worse, by ugly barns; or a beautiful and expensive house set down between small houses or ugly rookeries, making it unattractive by reason of its companionship.

In the yard before us we admire the few trees shading the sides of the house and bordering the lawn, and also the beautiful shrubs set where they will show to best advantage; still we think a large stretch of green sward before the house the ideal arrangement, and would favor placing even the choicest flowering shrubs at the side, or in groups along the borders of the walks or drives.

SPRAYING FOR PEACH AND PLUM ROT.

Peach and plum rot are among the greatest evils which face the grower. Many seem to think this evil entirely the effect of damp weather, but investigation shows it to be a fungus (Monilia), which develops more rapidly in wet weather than in dry, and which lives over the winter in the mummified fruit, so often left hanging on the trees. These ought to be collected and burned, and that which falls ploughed under.

The Delaware station advises spraying peach trees three times with Bordeaux mixture for rot, viz.:—(1) before blooming; (2) after bloom has dropped, and (3) at the beginning of coloring. For the 3rd application copper acetate solution, 8 ounces to the barrel, is recommended. Such treatment has been found to increase the yield fourfold.

Fig. 1109.—An Italian Villa.

THE YELLOW RAMBLER ROSE.*

FIG. 1110.—YELLOW RAMBLER.

A YELLOW climbing rose is something that has always been denied our northern gardens, because of the severity of our winters and the tenderness of all climbing roses having yellow coloring, for the combination of yellow color, climbing habit and hardiness in a rose was one which it seems impossible to obtain, although the efforts of many hybridisers were directed to that end, and repeated crosses were made in the hope of securing it.

Mr. Peter Lambert, the German rosarian, is the man to whom the honor of the greatest success belongs. In his new rose, Yellow Rambler, we have yellow color, climbing habit and very considerable hardiness. It has withstood unprotected and without injury a continued temperature of from zero to two degrees below, and although it has not yet been fully enough tested to know positively about its capability for undergoing still lower temperature, yet there is no reason to think that it will not also withstand a much greater degree of cold. In any event we need no longer deny our northern gardens climbing roses of that most attractive color of all, yellow, for if given a very little protection in the winter, the Yellow Rambler should do well anywhere that other roses succeed.

To those unfamiliar with such things, it seems strange to talk of crossing roses, or rather breeding them, which is exactly what is attempted in hybridizing. It is, or should be, gone at with a definite end in view; with a clear idea of what qualities are wanted in the proposed new rose, so that a judicious choice of varieties for the parents can be made, the same as one would do in breeding horses or cattle. In producing the Yellow Rambler, Mr. Lambert selected for the mother the Japanese Polyantha Sarmentosa, a wild rose that is native to Japan, and which is a vigorous climber as well as very hardy, both of which qualities were especially wanted in the hybrid. Flowers of this Polyantha Sarmentosa were then fertilized with pollen of a yellow rose called Reve d'Or, which, on account of its having somewhat greater hardiness than most yellow roses, was a suitable variety for the purpose. The seed resulting from this hybridizing was planted, and the Yellow Rambler is the result.

It all seems easy and simple enough to read about, but where success is met

* This article was written by the introducer. We have not seen this rose, Ed.

Fig. 1111.—

with once, failure comes hundreds of times. The hybridizing has to be done when both the pollen of the one flower and the stigma or fertilizing surface of the other are in just the right stage, or else no cross will be effected; insects or the wind may spoil the work by introducing the pollen; seed may not be formed, or if formed at all, may not germinate, or if germinated may not have combined the qualities desired, so many more failures than successes must be expected.

Mr Lambert has tested the Yellow Rambler for eight years, which shows a very commendable caution upon his part about distributing a new variety. If all originators would but follow this example, and carefully test the value of their new things, the number of doubtfully meritorious novelities that are yearly foisted upon the public would be greatly diminished.

It is interesting to note that there is a very strong probability of blood relationship between the Yellow Rambler and a rose that was introduced some three years ago, the Crimson Rambler. The Crimson Rambler was first found growing wild in Japan, and from its foliage, growth and manner of blooming is thought to have been produced from the Japanese Polyantha Sarmentosa, which was the seed parent of the Yellow Rambler. If this is the case it would make the Yellow Rambler and the Crimson Rambler first cousins. This supposed relationship is rendered still more probable by their very considerable similarity in foliage, habit of growth and manner of blooming. The flowers of the Yellow Rambler are borne in immense trusses, like those of the Crimson Rambler, are very sweetly fragrant, and last a long time without fading.

THE accompanying cut of the Star strawberry comes from E. W. Reid, Bridgeport, Ohio., who claims for the plant vigor, productiveness, and great power to resist the drouth, and for the fruit great size and high quality.

FIG. 1112.—

OLD peach orchards may be made young again by severe cutting back. A good many will hesitate to do what may be safely done in this direction. I once heard a practical and successful peach grower relate his experience in cutting back large trees. The buds were winter-killed, so there was no hope of a crop that year, so in March he cut the trees back to within five or six feet of the ground, leaving stubs of branches, some of which were nearly two inches in diameter. Instead of killing the trees, as his neighbor peach-orchardists prophesied it would, they made a magnificent new growth, and the autumn being favorable, matured a nice lot of fruit buds. The following year more than a bushel per tree of fine fruit was gathered, and the trees instead of being long and straggling had taken on heads somewhat like young trees. This severe pruning must be done in March, as soon as the weather becomes warm enough to thaw the frost in the wood. It will not do to do it after trees are in leaf.—Green's F. G.

SMALL-FRUIT GROWING.

CULTURE IN FARMERS' GARDENS.

FIG. 1113.—MR. B. GOTT.

Mr. B. Gott was the eldest son of a family of nine, and who emigrated from across the Atlantic in the year 1845, being then 12 years of age They first settled in the township of Southwold, near St. Thomas, but in 1852 the family took up a lot of some 200 acres in the township of West Williams, Middlesex Co., and came there into the unbroken forest to make their future home. But the eldest son started off in another direction and, after engaging with the Upper Canada Book and Tract Society, Toronto, was appointed to the Co. of Wentworth, Ont., as travelling agent or colporteur, in the autumn of 1856. After following this work for some two years, he put himself to the so-called Grammar School of those days in Ancaster, and so fitted himself under the efficient tuition of James Regan, M.A., for the work of Common School teaching in Canada, and made his first efforts in this line in the township of Oneida, Haldimand Co., on the Grand River near Cayuga, and then in Ancaster near Ancaster village. In January, 1861, he attended the Provincial Normal School at Toronto for one session, and after passing, came to Arkona, Lambton Co., to begin his work as teacher of their public school. Continuing teaching in Watford, Thedford, Corunna and other places for some eight years, and finding it not to agree with his health, he decided upon a change. He then bought a small farm near Arkona and thenceforth determined to devote himself to practical horticulture and to be known as a practical nurseryman and fruit grower, a life-long desire for which he had been secretly eying and preparing himself from the first.

In 1862 the Arkona Nurseries were established, where they exist to this day and have been very serviceable in these lines to the whole surrounding country. There he took great pleasure to make it his especial business in life to introduce, produce and grow new and valuable fruits and fruit trees and plants in our midst, and took great pains to so teach and educate the people of all ranks in the beauties and great values of good fruit and to grow them for themselves.

In this he has been eminently successful, although it is commonly said "the way of the pioneer is hard." To-day he has the great satisfaction of knowing that the whole region of country for many miles around Arkona has come to be one of the greatest and best regions for fruit growing in Western Ontario, and especially so in strawberries and raspberries.

Mr. Gott has been fully interested in the good work of the Ontario Fruit Growers' Association for many years. He was appointed on the Directorate of the Association during the presidency of the much esteemed Dr. Burnet, at their annual meeting at Hamilton, February 6th, 1878. This is esteemed as one of the most valued relationships of his life and was what gave direction, tone and vigor to all his operations.

In 1893 Mr. Gott, well-worn and tired from his labors, determined to leave the work to other and younger hands and heads, and so, placing the whole matter in the hands of his sons, retired to the thriving town of Strathroy, where he at present may be seen interested in his own small garden and the welfare of the people and the town where he lives. May the labor of his hands greatly redound to the best interests of his beloved country.

BLACKBERRIES.

BY Blackberries we would at this time mean and designate *Rubus Fruticosus*, ord. *Rosaceæ*, otherwise known as Brambleberries, as distinguished from Black raspberries or Black caps, *Rubus Occidentalis*, of which I have before treated. But many of our most valued sorts have come directly from the native American wild Blackberry, *Rubus Villosus*, found all over this northern continent, and propagated by judicious crossings and selections, etc. This

form of berry is one of very great value not merely to the farm garden, but also to the larger professional fruit grounds, and to all cultivators in general. But on account of some public prejudice against its large straggling growth and its very disagreeable hooked thorny appendages, we find it very much neglected and not nearly so generally grown and enjoyed as its great merits and lovely qualities as a table and preserving fruit properly demand it should be. These prejudices against its growth very largely arise from a misunderstanding of better methods of treatment, or from an entire ignorance of good methods on the part of the cultivator. I will therefore attempt very briefly to describe a method of growing and managing the blackberry that has been adopted by some very successful growers and has been quite satisfactory all round.

In the first place, as to the soil and climate; it is known to be somewhat sensitive, for these must be exactly suitable to its needs and requirements to attain the best results. Just here I may be excused, should I embody a little personal observation of my own, bearing on the questions of the case.

FIG. 1114.—BLACKBERRY.

During the very pleasant season of

our Canadian year, known as August, last, I was completely delighted by a few weeks' visit to some dear friends living in the far-famed fruit regions near Leamington, Co. of Essex, on the north shore of old Lake Erie, about eight miles east of Kingsville. This fine fruit region is known as one of the most favorable spots of Ontario for the most successful growth and production of peaches and strawberries and grapes, etc., and it also possesses those essential qualities in soil and climate for the proper development of the finest blackberries, and that to an extent I never before saw in this country. It may be that similar qualities may be found in other parts of our country, but I am not personally acquainted with them. Before this opportune visit, I never before knew what blackberry growing properly meant, or its products counted for amongst our cultivated fruits. Both the soil and the climate here seemed conjoined to produce the largest sizes and the fullest and highest perfections attainable in the fruit, and these were something far beyond my feeble powers of description to properly convey to you. This soil is a rich mixed gravelly loam, apparently so made by the action of deep overflowing waters during past geologic ages. The climate is that fine quality of pleasant and enjoyable balmyness, with a certain admixture of moisture in it that is so characteristic of this whole extent of shore of old Lake Erie. In these fine conditions the finer sorts of cultivated blackberries, planted in large fields of great extent, made a most surprising growth and produced fruit of the most surprising size and rich shining blackness and most delightful genuine blackberry flavors that would defy competition.

The pickers here had what we might most properly call a *snap*, for the way they could fill the baskets and crates, it was something quite astonishing. This led me to understand the essential requirements and proper conditions necessary to successful blackberry culture, as so grown and so perfected, they were the very climax of blackberry fruit products.

The growers in that region, after carefully preparing their soil, selected good strong one-year old plants of the variety most desired, and carefully planted them any time in the early spring and kept them well cultivated throughout the season. They plant in long straight rows, 6 feet apart and 3 or 4 feet in the rows; that is 2,610 or 1,815 plants per acre, these making a fine strong growth they cut back the following spring to about 18 inches. This summer the growth is very closely watched and as the young canes are pushing forward, some three or four of them are allowed to grow to the height of about 3 feet and then the lead is pinched out and all other shoots are cut out clean. This causes a vigorous growth on the side shoots, which also may be checked should they become too strong before autumn. The following spring the whole is cut close to about 3 feet and all dead wood is removed, and even the side shoots trimmed in snugly, so as to ease the work of the pickers.

This year there will be a full and beautiful crop, and in this way blackberry growing may be made a very pleasant and paying success in almost any good fruit section. The plantation so put out and so cared for is expected to be good and yield good crops of fine fruit for fully ten years or longer.

After the fruit is all cleanly gathered, the old bearing wood is carefully cut out and removed, to make good room for a strong and rampant growth for

next year's fruiting. I cannot just now state exact results, but I remember they were very large in quantity, and usually they realized very satisfactory results from them when put on the market.

The variety they mostly planted was the old well-known variety, Kittatinny, which seemed here to be perfectly at home, as I never saw anything like them before. For general planting, I may say that perhaps the old hardy reliable sort, Snyder, is the best for not very favorable locations, or for our strong clay soils. The plant is very hardy and very productive, and the first is, though not the best, yet fairly good. Wilson's Jr. and Wilson's Early are both large, handsome good blackberries, and in favorable locations and soils may be made very serviceable in a large product of very fine beautiful fruit.

Wachusetts is a newer and very excellent blackberry and will do well if planted on good loamy soil. For kitchen purposes during our long winter months, there is nothing better for family use than a good large supply of these most luscious blackberries. They can be made up into almost all forms of pastries and are first-class for jams, jellies, dessert, etc.

B GOTT.

Strathroy, March 10th, 1897.

OSBAND'S SUMMER PEAR.

FIG. 1115.—OSBAND'S SUMMER PEAR.

AMONG the early summer pears of fine quality for the dessert table is the Osband's Summer, which ripens early in August. It is an American pear, which originated in New York State, so that it is in its own altitude when grown in Southern Ontario. The tree is fairly vigorous, and a good bearer, but the fruit is rather small for a market pear. For home use as a summer dessert pear it is excellent, and a tree or two should be planted in every garden. The form is well shown in the accompanying photogravure, which of course is much reduced. The quality is very good, being rich and sweet, with agreeable aroma.

At Maplehurst we have had this variety many years in bearing, but cannot advise it for planting in the commercial orchard, not only on account of the small size of the fruit, but also because the tree is somewhat subject to blight.

CLEFT-GRAFTING.

CLEFT-GRAFTING is probably in more general use than any other kind. It is commonly performed to change the bearing of apple, plum and various other trees and plants. It may be used on very small branches or stocks, but is the form that is best adapted to large branches. The tools used on stocks of larger size are a sharp, fine saw for cutting off the stems or branches and a grafting-chisel for splitting the stock and holding open the cleft. On small stocks a sharp knife is used for all the purposes of saw and grafting-chisel.

FIG. 1116.

The work is done as follows: The place selected for the insertion of the scions should be where the grain is straight. The stock is then cut "square" off, and is split through its center to a sufficient depth to allow the scion to be put in place. The cleft should be held open by the wedge-shaped part of the chisel (a large nail will answer the purpose in a small way) until the scions are inserted, when the wedge is withdrawn, allowing the stock to spring back and hold the scions in place. If the stock does not spring back into place, it should be drawn tight against the scions by a piece of string. The number of scions put into each stock will depend on its size, but generally only two were inserted, and on small stocks only one. The inner bark of both scion and stock should come together, as shown in Fig. 1118. When inserted the scions should appear as in Fig. 1117. The scions should be made wedge-shaped for about one and one half inches where they go into the cleft,

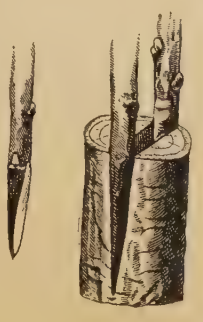

FIG. 1117.

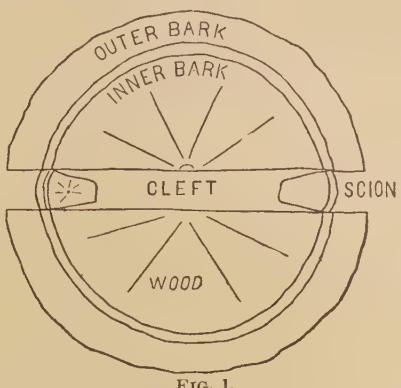

FIG. 1.

FIG. 1118.

and also be wedge-shaped crossways, as shown in Fig. 1117, so as to bind the inner bark of scion and stock securely together. They should each have two or three buds above the cleft. The scions must be wood of the preceding year's growth and no older. It is important to use a sharp knife for making the cuts. When the scions are in, all the cut surface should be covered with grafting-wax, as in Fig. 1116, or with a ball of stiff clay and cow dung mixed; but grafting-wax is most convenient.—*Farm and Fireside.*

BUILDING AND HEATING SMALL CONSERVATORIES.

NOW, that greater interest is taken — mainly through the efforts of the Fruit Growers' Association—in improved horticulture in this province, many inquiries may be expected similar to No. 917, in the March number of the Journal, page 118, respecting the construction and the fittings of small greenhouses or conservatories attached to dwelling-houses.

The replies by Prof. L. R. Taft, Michigan Agricultural College, to the three questions in part 2, *(a)*, *(b)* and *(c)* in Question No. 917, were not satisfactory. He says, *(a)* "Four would be ample and three would answer if the coil is at least thirty feet long, provided the temperature does not fall below 25 degrees." But with us the temperature sometimes falls fifty degrees or more below that point. What might the result be in that case? Sometimes, for several weeks, the temperature may seldom rise to 25 degrees. *(b)* "Four or five lengths, three or four feet long, should supply sufficient fire surface." This 15 or 16 feet of 2-inch pipe, if properly placed, would be ample for four times the length of pipe mentioned. *(c)* "If properly arranged, the pipes should work all right, as the entire circuit will not be more than 50 or 60 feet." The working of pipes does not depend on their length, but on the height of the upper surface of the coil above the point where the return pipe enters the furnace. Mr. German did not give this most important measurement.

Below, I submit a few pointers, which intending builders of such additions to their dwellings may do well to make a note of.

(1) The building should be constructed of the best available material (especially the glass), the workmanship first-class in quality (not necessarily ornamental), and the overseer of the work should have had some practical knowledge of the difficulties to be encountered in conservatory management.

(2) There should be no glass at the sides or ends of the building above the level of the benches, and a wooden or metal strip about 2 feet wide can be placed (nearly level) advantageously at the top of the roof next the house.

(3) The roof should have a pitch of 45 degrees and a southern exposure.

(4) The cheapest building is that one, the cost of maintenance of which, *i.e.*, the yearly cost of fuel, repairs, insurance, etc, being capitalized, will be the least sum.

(5) Such buildings can be heated cheaper, with less labor and attention and more satisfactorily, with water, than by any other means

(6) The power of its heating arrangement should be easily capable of maintaining a temperature of not over 90° to 95° by day and not less than 45° by night, even if the temperature of the outer air should fall to 25° or 30° below zero.

(7) The measure of the heating power is the quantity of water necessary to maintain this temperature under all possible variations of temperature of the outer air.

(8) It is found in practice that 20 gallons of water for each 1,000 cubic feet of space is sufficient for this purpose, and as

(9) It requires 147 feet 3 inches (nearly) of 2-inch pipe to contain 20 gallons of water, therefore, either of

these factors can be used in estimating quantities for a similar building of any size.

(10) It has been found by practical experience during the past six years, that 11 feet of 1½-inch pipe (equal to about 6 feet 2 inches of 2-inch pipe) is ample fire-surface for a greenhouse of a little over 1,000 cubic feet; *in addition* to heating a dwelling-house measuring about 15,000 cubic feet.

(11) The difference in weight between two columns of water 6 feet high, contained in 2-inch pipes, with a difference in temperature of 6°, is 114.6 grains, or less than the weight of one-half of one cubic inch of water (in practice, neither this altitude of the coil above the fire-box in such buildings, nor the difference in temperature of the two pipes is often exceeded); therefore every means should be used to get the level of the upper part of the coil as high as possible above the level where the return pipe enters the furnace, as the convection of the heat is produced by the difference between the weight of the two columns of water.

THOS. BEALL.

Lindsay, March, 1897.

SOME OF THE NEWER FRUITS.—I.

BY E. MORDEN, NIAGARA FALLS SOUTH.

Japan Wineberry.—The bush of the Japan Wineberry resembles a black-cap in its mode of growth, and like it propagates from the tips. The entire surface of the drooping canes is covered with red spines or soft bristles which give a peculiar and ornamental appearance to a plot of these bushes. The fruit is like a sour red raspberry, but smaller. Up to the time of ripening it is enclosed in a capsule which resembles that of a moss rose and the fruit becomes visible as it ripens. It appears in bunches like berries, but from a considerable thicket of it I got very little fruit. As a bit of novel shrubbery with chances of some small edible fruit it answers very well.

Dwarf Juneberry.—This has several merits. It is a dwarf grower, reaching three or four feet in height. It is very hardy. It produces a great mass of white bloom very early in the spring. It produces a full crop of edible berries about July 1st and continues to ripen its fruit for two weeks or more. The fruit resembles huckleberries closely but not so good in quality. Nearly every one likes to eat it from the bushes. When canned and cooked it is sweet. It would answer nicely mixed with currants. With us the birds do not eat many of the berries, which shows that the birds are not properly posted.

The people too need posting. We sent two crates to the Niagara Falls market. Many asked questions, said the berries were very nice, but they forgot to buy any of them. They were therefore entered for home consumption and we are consuming them.

A few nice clumps for ornament and for home use would be interesting and useful to any one who likes to try a new fruit. In more northern localities I think they should be found in fruit gardens. In the present state of public opinion I can scarcely recommend any one to plant them largely for market purposes.

The Orchard and Fruit Garden.

ABOUT JAPAN PLUMS—ARE THEY HARDY?

I AM frequently asked the question, "What about Japan plums, are they valuable and hardy enough for Canada?" There is no question about their value if they are hardy, at least many of them. They are early, of good quality, and much less subject to rot and fungus disease than our varieties and European varieties. I have been a little skeptical about their succeeding farther north than our peach belt, as my own experience with them has been that when the fruit buds of the peach were destroyed by extreme cold, they were also injured, though I know the trees will stand more frost than the peach, without killing back. I have lately received a communication from Dr. A. B. Dennis, of Cedar Rapids, Iowa (a gentleman who is testing a large number of varieties of plums there), upon this subject, and as I think it will be of interest to the readers of the HORTICULTURIST, I will give you some extracts from it. He says, "Among the best commercial plums here of the Japs are Burbank, Normand, Boton, Ogon, Chabot, etc. I have not found any of these plums extremely tender except the Kelsey, which killed down to the ground. The thermometer has been down to 28 below zero, and yet trees were ladened. I am aware Prof. Budd has persisted in stating the Japan plums will not do in any part of Iowa, but my experience has demonstrated that some of them are valuable in our severe climate. We are considerably out of the peach belt, and but very few ever fruit here except a few hardy seedlings. Some of my Jap trees are eight years old, yet all are as healthy as my natives. Prof. Budd assured me ten years ago that Japan plums were tender as weeds, so I commenced with one or two trees, and when it went 20 below zero, and these little trees were ladened with fruit it surprised me. One winter it went 30 below, and killed many of Prof. Budd's Russian sorts, and not even a tree of the Japs were killed nor were the fruit buds injured. Of course I can not say what they will do with you, but the facts I state and the 25 bushels of plums of Japan type raised the past season, speak better than I can write."

From this letter I am encouraged to believe that these valuable plums may be grown over a large portion of Ontario. We are having them tested at some of our Experimental Stations, and I trust others who have tested them will give us their experience through the HORTICULTURIST, so we may know their true value and where they will succeed, in the near future. In the meantime planters living within the peach belt need not hesitate to plant largely of them.

A. M. SMITH.

St. Catharines.

GOOSEBERRIES.

THIS is a good fruit to grow for sale, as they can either be disposed of ripe or green—in which state they often give the best returns—or they may, in the case of the red varieties, be left until ripe. In Kent, England where large quantities are grown, they are generally gathered by women and girls, who earn good wages at the rate of 4d. per half sieve for green ones, and 2½d. to 3d. for ripe fruit.

Planting.—The best time for this as for all fruits, is when the leaves begin to change color; but any time between October and May will do if there is no severe frost or snow at the time. Gooseberries may be raised from cuttings in a similar way to black currants, except that gooseberries are best grown with a stem, from 6 inches to 1 foot high, to allow of digging, etc., underneath, and to keep the fruit from the ground, also to prevent so many strong shoots growing in the centre of the tree. The cuttings should, therefore, be not less than 9 inches in length, as 3 inches should be put into the ground and trod den in firmly. All the buds should be cut off gooseberry cuttings except three or four at the top, to prevent suckers springing up from the root. The distances for planting should be the same as for black currants. The gooseberry will thrive in a stony soil better than currants. The cost of planting per acre will be about the same as for currants.

Pruning.—For young bushes this consists in selecting six or eight main branches springing out evenly not far from the top of the stem. Thus, if the cutting throws out three or four shoots the first year they may be cut back to within 4 inches at pruning time, when each one will throw two or three good shoots the next season, and enough may then be selected to form the future tree, keeping the centre open and cutting always to buds that point in the right direction for the branch to grow. Some varieties, and especially Warrington, persist in bending over towards the ground, and require pruning back well to get the main branches as upright as possible. All strong roots in the centre of the tree should be cut clean out and the small side branches cut off within an inch of their base, leaving one almost full length occasionally in the thinnest parts of the tree, and always leaving a good leader at the point of the main branches until they get 4 feet in height. Summer pruning is also of great benefit to the gooseberry. This consists in cutting out all young shoots in the centre of the tree and elsewhere which would otherwise be cut out at the winter pruning. By cutting them out in summer as soon as the fruit is gathered the remaining buds on the main branches get a better chance to ripen and store up nourishment for the next year's crop. The work is also much better done in mild weather than in the winter. In the Kent plantations gooseberries are pruned by the "tree cutters" in "piecework," during the short days of winter at about 1s. 6d. per 100 trees, according to size

Cultivation and Manuring.—Like all other bush fruits, gooseberries pay well for an application of manure about once in two or three years. Night soil is often given to them in Kent, and materially assists in bringing very heavy crops of fruit to perfection. The soil is removed from under the bushes early in the spring, forming a basin-shaped cavity into which half a pailful of night soil is poured, and the next day the earth is put back again which had been removed.

Large quantities of London manure is also brought down the river in barges, and after partial decay is applied during the winter months before the plantation is dug over, but there is no manure so good as that from a cowyard when it can be got. The plantations should be kept perfectly clean by hoeing and hand-weeding if required, and the ground should always be dug roughly in the winter after the bushes are pruned.

Varieties.—Whitesmith for gathering green, Crown Bob either green or red, Warrington for late red fruit. A new variety called Early Kent has lately been very highly spoken of for its earliness, which is a great consideration in gooseberries for market.

Gathering and Marketing.—Gooseberries, if *early*, pay well for gathering and sending to market green, and for this purpose Whitesmith is the best among the older varieties for early work. But Early Kent is said to be much earlier. The early sorts should be planted in the warmest part of the ground, in order to get the full advantage of the early prices, and all of the "White" Gooseberries should be gathered in a green state for market, as they do not sell well when ripe. Some of the Crown Bobs may also be gathered green, or all of them if prices are good. Warrington generally pays best when ripe. I say *ripe*, but ripe gooseberries for market must only just be red If allowed to get quite soft they are apt to split in damp or showery weather, and there is thus a risk of great loss, which is avoided by gathering earlier. Also they will not stand handling at the market if over-ripe; neither will they travel so well; but if required for sale near home, the wishes of the buyer must be considered. Green gooseberries should realize from 2s. to 3s. per stone at the market, ripe fruit 1s. 6d. to 2s. 6d. An acre planted 5 feet apart each way should yield the first year about 40 stones of green fruit, or 60 stones when ripe, worth £4 to £5 clear of expenses, and this will increase yearly as the trees grow (if the crop is not spoiled by frost), until at six or seven years after planting they should have reached a full size, and give a crop of 5 tons per acre, worth £50 at a low estimate clear of expenses. It is possible to have double this amount occasionally by high cultivation and getting the best prices in the market. As gooseberries may be grown among standard apples and other fruits, they will add considerably to the returns, although it is not possible to grow such large crops of under fruit in mixed plantations. They should be packed for market in half sieves containing 2 stones, or 28 lbs. nett, and finished off as advised for black currants.

Enemies.—Birds are very troublesome to the gooseberry grower, both when the fruit gets ripe (at which time they must be scared off by shooting), and also by eating the buds off when the trees are in a dormant state. It is at this stage when most mischief is done, as every bud eaten then means the loss of two or three gooseberries. Strings of white cotton crossed in various ways over the trees by twisting them round four of the most prominent branches is one of the best methods of frightening them away. When damage from this cause is expected the trees should be pruned, and cotton put on them before January, as pruning is not easily done after the cotton is on. Bullfinches and sparrows are the most destructive among the buds. All of the former should be destroyed, as they do no good to the fruit grower to counterbalance the mischief. Sparrows do some amount of good in summer by devouring caterpillars, and must not all be destroyed, or the remedy may

be worse than the disease. The gooseberry caterpillar often does a vast amount of damage if not destroyed as soon as it appears. Handpicking is the best and safest remedy for these. Dusting the bushes with white hellebore powder is often recommended, and is very effectual.—Journal of Horticulture (England).

NOTES ON APPLES.

THE Red Bietigheimer Apple, which was so favorably noticed in Garden and Forest for September 25th, page 390, has fruited here several years. While it has valuable qualities for culinary and market purposes, its flesh is rather coarse, and it would not be called a good dessert fruit except by those who like a brisk subacid flavor. On account of its symmetrical form, large size and handsome color no apple in the station collection attracts more attention than this at fairs and exhibitions. Under good cultivation it is a free grower and a regular and abundant bearer. The fruit is very large, and quite apt to drop before it is well colored. This fault is more serious with the Red Bietigheimer than with Wealthy, Alexander or Gravenstein, and probably will prevent its being planted extensively in commercial orchards.

Among the comparatively new or little known varieties of considerable merit is the Sharp. The fruit resembles Maiden Blush somewhat in shape and color, and it is better for dessert use than that variety. Its flesh is nearly white, fine-grained, tender, moderately juicy, nearly sweet, of mild pleasant flavor and very good quality; season, October. The tree has fruited here but three years, but it appears to be a good bearer.

One of the handsomest late August and early September apples in the station collection in the Stump, which is excellent for market or home use. It begins to ripen soon after Chenango Strawberry, which it resembles in shape. The tree is upright and productive. The fruit, borne on short spurs close to the limbs, is pale yellow, beautifully striped and shaded with red. Flesh firm, crisp, tender, subacid, mild in flavor.

Switzer is a very handsome German apple that begins to ripen about the first of August. The fruit, which is of medium size, is nearly white, with a beautiful blush. It is very good in flavor and good in quality either for dessert or for culinary use. The tree is productive.

Williams' Favorite, is a dessert fruit that should be more widely known. Its symmetrical form and deep red color make it an attractive apple in market. It is also desirable for home use, as it is good in flavor and quality. The tree makes moderate growth and is a good bearer.

Among the October apples desirable for culinary use may be mentioned Cox's Pomona. It is an old variety of English origin. The fruit is large, highly colored with crimson on a clear, very pale yellow ground, making it an attractive market fruit. The flesh is white, crisp, subacid. It cooks evenly and ranks good in quality.—S. A. BEACH, in Garden and Forest.

TOMATOES FOR ENGLAND.

THERE have already been several attempts to place our Canadian tomatoes on the English market successfully. There is little doubt that the fruit would bring remunerative prices if it could be placed on the British market in proper condition, because the English tomatoes have to be grown under glass, and are sold at high prices. If we could get 3 or 4 cents a pound net for our tomatoes in the month of September, we would find tomato growing very profitable, but very often we cannot realize one cent a pound for them in our own markets.

Shipping them to Great Britain under ordinary conditions is not a safe undertaking. A report is before us of 764 cases of tomatoes shipped by Mr. E. P. Ainsworth on September 4th, 1896, which turned out disastrously. They arrived in such a bad state that they could only be sold for a mere trifle, and left a bill of expense to be paid the steamship.

It is recommended that tomatoes for such distant markets be packed in little cells, as eggs are packed, or in sawdust, to prevent their being crushed one on another.

But the great hope for a successful export trade in tomatoes is in the cold storage scheme, now being worked out for us by the Dominion Department of Agriculture. Messrs. Elder, Dempster & Co., of 23 Scott St., Toronto, on whose line of steamships cold storage accommodation is being provided, are disposed to make an effort to encourage the export of Canadian tomatoes.

Mr. John Craig, whose bulletin appeared in our last issue, writes that he believes tomatoes may be exported with profit after September 1st, when there is little demand for them in the home market. Whether or not it will pay to export them during August, when the demand in Canada is fairly brisk and the prices remunerative, is a question that can be decided only by actual trial.

The small case proposed for use in the export of tomatoes, in our last number, would hold about four dozen medium-sized tomatoes. Each tomato should be wrapped in tissue-paper, or in a light cheap grade of printers' paper. They should be carefully packed stem-end down, in such a manner as to have them firmly in place when the case is filled. Each case should bear the shipper's name, with the quantity, or the number of tomatoes which it contains.

Intending shippers who may desire further information may apply to Prof. Robertson, Agricultural and Dairy Commissioner, Ottawa; Messrs Elder, Dempster & Co., Montreal; or to R. Dawson Harling, steamship freight agent, 23 Scott St., Toronto

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THINNING FRUIT BY SEVERE PRUNING.

A NOTED pear grower in Toledo, O., who takes many premiums at the State Fair, gives very high culture and then prunes severely in March. In this way he gets a strong, vigorous growth, and the vigor being thrown into the portion of fruit buds left after pruning gives very fine fruit, which commands a ready market, even when ordinary fruit is rotting in the dealer's store. I asked him once if such high pressure system would not shorten

the life of his trees. "O, yes, I suppose so, but for a pear tree a short life and a merry one is the most profitable. What use is a tree of any kind if it does not give regular crops of saleable fruit? If by this method, I can get a crop that will more than pay for high-priced land every year, what matters it if my trees do die twenty or thirty years sooner than those of some man who is coddling a lot of barren trees? What I want is more results while I live."

At the recent Western New York Horticultural Meeting, President Barry showed some very fine winter pears. He has done the same thing for many years, and this year I asked him to tell the Society how he managed to grow Winter Nelis to about four times the size that it commonly reaches under ordinary management.

His answer (somewhat abbreviated) was that trees growing in rich ground were severely pruned in late winter, and the fruit thinned somewhat, if necessary, when partly grown. The latter, however, under his man's severe pruning, was rarely necessary. His man pruned more severely than he himself would if he had it to do, but the results certainly were all that could be wished for. The same results may be reached by thinning the canes of red raspberries and blackberries.—*Green's F. G*

GOOSEBERRY MILDEW.

IT has been a theory of mine for some years that all one requires to produce a perfect gooseberry is to give them plenty of sunlight, a free circulation of air, and keep the soil about them well mulched with hardwood ashes. Whether this theory is sound and to be depended on in all seasons I would not like to give a voucher. But I will say with positiveness that gooseberry mildew cannot be prevented by the use of Bordeaux mixture.

Three years ago I gave up the use of ashes. Two years ago I saw indications of mildew on the leaves of my bushes, the fruit all having been killed by the spring frosts. I at once sprayed with Bordeaux mixture, it being then in the month of August. Last year I prepared early and while the buds were opening I gave the first spraying. Another application was given when the blossom was fading, and a third about ten days later, when the fruit was forming. The last application was a very thorough one, as I saw indications of mildew on the tender shoots. In less than three weeks the ground was covered with fruit, and there was scarcely a clean berry to be found on the bushes. One side of the fruit would be coated with the mixture and the other with mildew, and the many cases the mildew had developed under the coating of the mixture.

My neighbor, Dr. Hurlburt, had an experience with Bordeaux mixture precisely similar to mine; but on his bushes, which he had treated early in the spring with an application of ammoniacal copper corbonate solution he had a clean handsome crop.

I still believe had I continued my system of cultivation with the annual application of ashes, I would have had no mildew; but the disease once in it requires a more radical remedy than air, sunlight and ashes, though all are good. What that remedy is I would like to know That it is not to be found in Bordeaux mixture I am now satisfied.

T. H. RACE.

Mitchell.

WHEN TO PRUNE STREET TREES.

PASSING along one of the streets of our city to-day, I noticed a man trimming some very fine shade trees of about twelve years' growth, consisting of maples and elms.

From every cut on the maples the sap was dropping almost a stream, in some cases it was oozing out and spreading over the bark of the tree ; the elms, of course, were not bleeding so freely.

I ventured to remark that I did not think it the proper time to trim shade trees, giving as my reason that at this season of the year there was a great loss of sap, especially in maples, and that I did not think that a cut made now would heal over as quickly as if cut in June, after the sap had gone up and the foliage was out. The trimmer stated that so far as he was personally concerned, he did not know much about that, but said he had been told that March was a good time in which to trim such trees. And I have noticed that our City Park Commissioner is busily engaged with a staff of men trimming the city shade trees.

Now, Mr. Editor, I write for information in reference to this matter ; for my own part I do not consider that shade trees, or any other trees, should be trimmed at this season of the year.

I would like very much if you would give your opinion on this subject, as you no doubt have had actual experience in trimming, both shade and fruit trees. I should also like to have the opinion of others, through your valuable Journal, especially on the trimming of shade trees, such as maples, elms, etc., and what is the best time to trim.

Will a large limb, say, from one to three inches in diameter, cut now, heal over as quickly as if cut in June ? or do you think a cut made now will heal over at all ? Is a tree not injured more by the sap running from a cut made now, than by the loss of vitality in producing the foliage on these limbs, if taken out in June ?

I trust my enquiries are not out of place, and that anyone who may have studied this important matter of trimming street trees, may give the result of their experiments, or knowledge, through your paper.

A CONSTANT READER.

Toronto, March, 1897.

HOUSE PLANTS.

Dust, insects, dry air and over-watering are the principal difficulties that they have to contend with. By arranging some light covering to put over them while the room is being swept, and an occasional syringing in the bath-tub, kitchen sink or elsewhere supplemented by a sponging the leaves of all *smooth leaved* plants, this great enemy to plant health, may be kept under.

Insects may be mainly kept off by hand-picking and a brush; if needed apply tobacco water, or arrange a box or barrel in which they may be thoroughly fumigated with tobacco smoke.

Over watering kills many plants ; pots in the house, especially the handsome glazed ones, should be provided with abundant drainage—broken pots, cinders, oyster shells, anything to make open layer at the bottom ; then a layer of moss to keep the earth from washing down, and then a soil made so open by sand that it will allow the water to pass through. With these precautions there is no danger, but where the surface of the soil is muddy an hour after watering, there is something wrong and plants will not thrive. A. H. CAMERON.

Tiverton, Ont.

SPRAYING FRUIT FOR SCAB AND ROT.

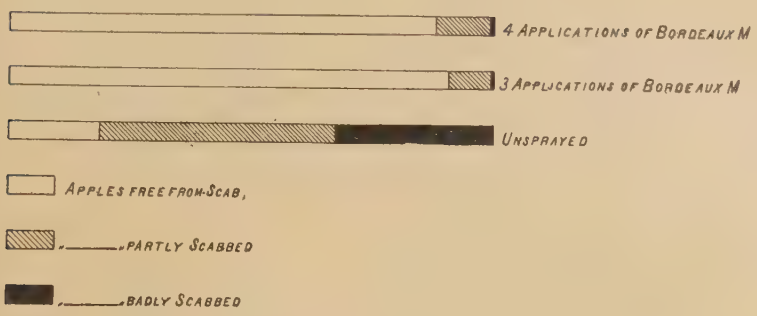

Diagram V. Showing the Percentage of apples of different grades. From sprayed and unsprayed trees.

Fig. 1119.—

THE Report of the Supt. of Spraying for Ontario will soon be issued, in connection with our Fruit Growers' Report, and, notwithstanding the comparative immunity of apple scab generally last season, it will still show plain and positive proof of the benefits of spraying. The real question for our experiment stations to consider is not how many applications may be given with benefit, but how many will give sufficiently better results to warrant the expense. Six applications are too many for the ordinary farmer, if half that number will give approximately as good results. Experiments in Delaware Experiment station gave results as shown in accompanying table in which the unsprayed gave very few perfectly free, and those sprayed with Bordeaux mixture very few scabbed ones. It is noticeable that there is very little difference between the results from three and four applications. It appears that the early spraying is what counts, and that which is done after the fruit is the size of peas does not always give sufficiently better results to warrant the expense. In one instance three applications of the Bordeaux were found to give an increase of first grade fruit of five fold over the quantity from trees not sprayed. These three applications should be made as follows :—(1) Before blooming, (2) after bloom drops, and (3) when fruit is size of peas.

We are speaking only of the scab and rot in the remarks above made.

RICHARDA OR CALLA LILY.

The bulbs are planted in the fall in a 7-inch pot, the soil used being a mixture of sand, loam and well-rotted manure, in which place the bulb, and after watering freely, place the pot under a table or bench in the conservatory, not necessarily excluding the light entirely. They will appear not to make any progress for at least five or six weeks, just as in the treatment of hyacinths, tulips and other winter-flowering bulbs. After having remained under the bench for the required time, they may be brought to the light and freely watered until they have finished flowering. Previous to blooming a liberal amount of liquid fertilizer may be applied, which will greatly improve the flower, as well as brighten the white spots on the leaves.

After flowering allow the plant to grow for at least six or eight weeks longer, when the bulb may be taken out of the pot and exposed to the sun until thoroughly dried, when they will be in proper form for replanting in the fall.

SPRAYING CALENDAR, 1897.

ISSUED BY CENTRAL EXPERIMENTAL FARM, OTTAWA.

PLANT.	1ST APPLICATION.	2ND APPLICATION.	3RD APPLICATION.	4TH APPLICATION.	5TH APPLICATION.	6TH APPLICATION.
APPLE. Apple spot fungus, codling moth, bud moth, oyster shell bark-louse.	*Copper Sulphate and Paris Green.* Before buds start. (*Important*).	*Bordeaux and Paris Green.* Just before blossoms open. (*Important*).	*Bordeaux and Paris Green.* Soon after blossoms fall. (*Important*).	*Bordeaux and Paris Green.* 10-15 days later.	*Bordeaux.* 10-15 days later if spot disease is severe when hatched.	
	Kerosene Emulsion before buds start.			*Kerosene Emulsion* for bark lice.		
CHERRY. Rot, leaf diseases and injurious insects. Cut out and burn Black Knot	*Bordeaux.* Before flower buds open. *Kerosene Emulsion.* For aphis.	*Bordeaux and Paris Green.* When fruit has set. (*Important*).	*Bordeaux and Paris Green.* 10-15 days later. (*Important*).	*Ammoniacal Copper Carbonate.* 10-15 days later. (*Important*).	If a late brood of the "slug" appears spray with *Paris Green* or dust with fresh slacked lime. (*Important*).	
CURRANT. Fungous diseases, "currant worm."	*Paris Green.* When worms appear.	*Hellebore.* When fruit is fully formed.	*Bordeaux.* After fruit is picked.	*Bordeaux.* 10-15 days later.		
GOOSEBERRY. Mildew, "currant worm."	*Bordeaux and Paris Green.* As soon as leaves expand.	*Bordeaux—Hellebore.* (applied separately). 10-15 days later. (*Important*).	*Ammoniacal Copper Carbonate.* 10-15 days later.			
GRAPE. Mildew, rot, anthracnose, "thrip" (or leaf-hopper).	*Copper Sulphate.* Before buds start.	*Bordeaux.* When first leaves are half grown.	*Bordeaux.* When fruit has set. *Kerosene Emulsion.* For leaf-hopper.	*Bordeaux.* 10-15 days later.	*Bordeaux.* 10-15 days later. If disease persists.	*Ammoniacal Copper Carbonate.* If disease persists.
PEACH, APRICOT, NECTARINE. Rot, leaf-curl, curculio, bud moth.	*Copper Sulphate and Paris Green.* Before buds start.	*Bordeaux.* 3 lbs. copper sulphate. 3 lbs. lime. 50 gals. water. *Paris Green* (3 oz.) Just before blossoms.	*Bordeaux and Paris Green* (3 oz.) Soon after fruit has set.	*Bordeaux and Paris Green* (3 oz.) 8-12 days later.	*Bordeaux.* 8-12 days later. If rot is prevalent.	*Ammoniacal Copper Carbonate.* 10-15 days later if rot is prevalent.
PEAR. Spot, cracking, leaf blight, codling moth, "slug."	*Copper Sulphate.* Before buds start. (*Important*).	*Bordeaux.* Just before blossoms open. (*Important*).	*Bordeaux and Paris Green.* Soon after blossoms fall. (*Important*).	*Bordeaux and Paris Green.* 10-12 days later.	*Bordeaux.* 10-15 days later.	*Paris Green.* If late brood of "slug" appears.
PLUM. Rot, shot-hole fungus, bud moth, curculio. Cut out and burn Black Knot.	*Copper Sulphate and Paris Green.* Before buds open.	*Bordeaux and Paris Green.* Soon after blossoms have fallen. (*Important*).	*Bordeaux and Paris Green.* 10-12 days later. *Kerosene Emulsion.* For Aphis.	*Bordeaux and Paris Green.* 10-15 days later. *Kerosene Emulsion.* For aphis.	*Ammoniacal Copper Carbonate.* 10-15 days later if rot is prevalent.	*Ammoniacal Copper Carbonate.* 10-20 days later if rot is prevalent.
QUINCE. Red rust of fruit and leaf.	*Bordeaux.* Just before blossoms open.	*Bordeaux.* When fruit has set.	*Bordeaux.* 10-15 days later.	*Bordeaux.* 10-15 days later.		

PLANT.	1st Application.	2nd Application.	3rd Application.	4th Application.
ROSE. Blackspot, mildew, "rose thrip," rose slug."	Mildew in Greenhouse. Paint heating pipes with paste made of equal parts of sulphur, lime and water.	Black Spot. *Ammonical Copper. Carbonate.*	"Rose Thrip." *Kerosene Emulsion.* When "thrip" appears.	"Rose Slug." *Paris Green*—1 oz. in 12 gals. water, or *Hellebore*—1 oz. in 2 gals. (This may also be applied as a dry powder.
RASPBERRY, BLACKBERRY, DEWBERRY. Anthracnose, rust.	*Copper Sulphate.* Before buds burst.	*Bordeaux.* 10-15 days later.	*Bordeaux.* Soon after old canes are cut out	
STRAWBERRY. Rust.	*Bordeaux.* After first blossoms have fallen.	*Bordeaux.* Soon after picking season or burn foliage.	*Bordeaux.* 10-15 days later.	
BEAN. Anthracnose.	*Copper Sulphate.* ½ oz. to 1 gal. water. Soak 1 hour.	*Bordeaux.* When rough leaves appear.	*Bordeaux.* 8-12 days later.	
CABBAGE. Caterpillars.	*Paris Green and Flour.* For flea beetle while plants are in hot-beds.	*Pyrethrum and Flour.* (1 to 4) dry. For cabbage worms.		
POTATO. Scab, rot, insects.	*Corrosive Sublimate.* For scab. 2 oz. to 16 gal. water. Soak 1½ hours. (*See Formula*)	*Paris Green.* For Colorado potato beetle. *Bordeaux* for flea beetle.	*Bordeaux.* For rot. From 1st August till end of season. 2 weeks apart.	
TOMATO. Rot, blight.	*Bordeaux.* First appearance of rot.	*Bordeaux.* When necessary.	*Bordeaux.* When necessary.	

Below are given formulas for the more important fungicides and insecticides. Should further information be needed concerning attacks upon crops by fungous diseases or insects, inquiries may be sent to the above address and will receive prompt attention.

FUNGICIDES.

DILUTED BORDEAUX MIXTURE.

Copper Sulphate	4 lbs.
Quick Lime	4 lbs.
Paris Green (for leaf-eating insects)	4 oz.
Water (1 barrel)	40-50 gals.

Dissolve the copper sulphate (bluestone) by suspending it in a wooden or earthen vessel containing 4 or 5 or more gallons of water. Slake the lime in another vessel. If the lime, when slaked, is lumpy or granular, it should be strained through coarse sacking or a fine sieve. Pour the copper sulphate solution in a barrel, or it may be dissolved in this in the first place, half fill the barrel with water, add the slaked lime, fill the barrel with water and stir thoroughly. It is then ready for use.

Stock solutions of dissolved copper sulphate and of lime may be prepared and kept in separate covered barrels throughout the spraying season. The quantities of blusestone, lime and water should be carefully noted.

COPPER SULPHATE SOLUTION.

Copper Sulphate (bluestone)	1 lb.
Water	25 gals.

As soon as dissolved it is ready for use. *For use before the buds open only.*

AMMONIACAL COPPER CARBONATE.

Copper Carbonate	5 oz.
Ammonia	2 qts.
Water (1 barrel)	40-50 gals.

Dissolve the copper carbonate in the ammonia. The ammonia and concentrated solution should be kept in glass or stone jars, tightly corked. It is ready for use as soon as diluted with the 50 gals. of water. To be used when Bordeaux cannot be appled on account of staining the fruit. Full particulars given in Experimental Farm Bulletin No. 23.

CORROSIVE SUBLIMATE.

For potato scab soak the tubers for 1½ hours in a solution of 2 oz. in 16 gals. of water. When dry cut up for planting.

Corrosive Sublimate is a fatal poison if take internally. It also corrodes metals. The solution should therefore be made in wooden vessels. All treated seeds should be planted, and any solution left over should be poured into a hole in the ground.

INSECTICIDES.

KEROSENE EMULSION.

Kerosene (coal oil)	2 galls.
Rain Water	1 gall.
Soap	½ lb.

Dissolve soap in water by boiling; take from fire, and, while hot, turn in kerosene and churn briskly for 5 minutes. To be diluted before use with 8 parts of water.

For bark lice and other sucking insects.

PARIS GREEN.

Paris Green	1 lb.
Lime (fresh)	1 lb.
Water	200 galls.

For dry application.—1 lb. Paris Green with 50 lbs. land plaster, slaked lime or any other perfectly dry powder.

For insects which eat foliage.

HELLEBORE.

White Hellebore	1 oz.
Water	2 galls.

Or to be dusted undiluted over attacked plants.

PYRETHRUM (or Insect Powder).

Pyrethrum Powder	1 oz.
Water	3 galls.

For dry application.—Mix thoroughly 1 part by weight of Insect Powder with 4 of cheap flour, and keep in a close vessel for 24 hours before dusting over plants attacked.

Flower Garden and Lawn.

CYCLAMENS.

SIR,—Will you kindly give treatment of Cyclamen. I see by a late number of this paper that the bulb should never be allowed to dry off, and looking up instructions in catalogue, I am told to dry them off. I have followed the latter plan, and have never succeeded well.

A SUBSCRIBER, *Seaforth*.

It was formerly thought a good plan to dry off the young Cyclamen bulb in summer; but the best cultivators have now abandoned the custom and better success is obtained. After blooming, they may be grown a second year by drying moderately and resting and repotting. The second year the flowers are earlier and smaller, after which it is not advisable to save the plants, as young seedling plants will give so much better results. A writer in *Vick's Magazine* writes:

I last year resolved to try Persian cyclamens in the same way we treat callas, eupatoriums, and a host of other things, viz.: planted out in the open ground in May. We selected a border close to a wall, and having dug it deeply and given it a good dressing of manure, the cyclamens were planted out about one foot apart each way; and, beyond keeping them free from weeds, they received no attention whatever until September. Then they had produced fine heads of young foliage, and many were showing flowers. They were therefore carefully lifted with good balls of earth, and the way in which the roots clung to the manure, and their healthy, vigorous look proved that they liked a good rich diet and plenty of it. They certainly were altogether more satisfactory than if they had been kept in pots.

PROPAGATION OF ORNAMENTAL SHRUBS.

IT is much to be regretted that the propagation of many of our ornamental shrubs is so little understood by amateur gardeners. There is nothing more pleasing to the eye than this class of plants, and as they can be had in a succession of bloom throughout the whole season from early spring until late autumn they should be as eagerly cultivated, especially by the rural population, as either flowering or foliage plants which decorate the gardens of the small city lots. Where grounds are of a sufficient size to show their beauty there is nothing to compare with these queens of Nature.

A very interesting book might be written on the propagation of shrubs, their season of blooming, height and general appearance, color and form of flowers, general situation of sun or shade, their capabilities of resisting cold, best method of protection during winter months, etc.

The multiplying of many of them is a perfectly simple matter, and when understood is both easy and interesting.

To propagate from cuttings as a rule, wood should be selected from the current year's growth that has been well ripened; make the cuttings eight to ten inches long, dig a trench along a stretched line, keep the rows straight and from two to three feet apart or even more if the plants have to stand many years in the nursery row. Place the back of the spade to the line, the earth should be thrown out on the side furthest from the operator making a V shaped trench, so that when the cuttings are laid in on the side next the line they will not fall over, place the cuttings in the trench from four to six inches apart, partially fill in with the soil thrown out, and firm the soil at the base of the cuttings with a piece of wood made for the purpose, say five feet long, two by six inches

square at the lower end, the rest may be rounded off to make it handy and light, the earth is only to be "firmed" not rammed too tight, but it must be brought snugly against the base of the cuttings which should be placed in the trench so as to leave the top bud or eye exposed above the ground after the trench is filled in level.

The cuttings are best made the end of October, or beginning of November, when the wood has well ripened; some people advocate planting cuttings in the autumn, but I prefer to tie them in bunches by twisting a wire round them (twine sometimes rots) and burying in a dry place where the water will not remain on the surface of the ground, doing the planting in the spring as described. The object of making the cuttings in the fall is so that the callus may form at the base; this effort of Nature always takes place previous to the young rootlets being formed, and this callus process goes on during the winter months so that growth begins earlier in the spring, than it would otherwise do if the cuttings were made in spring, giving the plant a longer season and consequently greater growth during summer.

Many shrubs may be grown by taking cuttings in May or June, after the leaves are expanded and some new wood is made, but they must be kept watered and shaded for a short period until they get time to root; a little mulch on the ground will also help to keep the soil moist. The lower leaves of these green cuttings must be removed, but the upper ones are left above the ground. If the

cuttings have to be kept for a long time, oiled paper should be used for an outside wrap to keep the parcel damp.

Appended is a few of the shrubs that may be grown from cuttings: any plant can be propagated by layering :— Althea, Cytisus, Carolina Allspice, Deutzia, Honeysuckle, Hydrangea paniculata, Japan Rose, Siberian Pea tree, Smoke tree, Spiræa (a large class of plants), Weigelia, etc., will all succeed without much difficulty.

P. E. BUCKE,

London, Ont.

HOW TO GROW ASTERS AND PHLOX.

MANY owners of small gardens are deterred from growing as freely as they would like, such very desirable flowers as Asters and Phlox Drummondi, from the mistaken idea that to be successful with them they must buy plants ready to set out or grow them in a hot-bed. If plants are bought the expense is quite a serious item if many are wanted, while the care of a hot-bed I have found in my experience to be one of the most troublesome things connected with a garden, only those who can give their whole attention to it can hope to succeed. The weather is so fickle in the spring that only constant watchfulness will prevent disaster; the neglect of an hour may result from a sudden change of temperature in the freezing or burning up of your plants. I find it quite satisfactory with all such plants to sow the seed in the open air as early in the spring as the ground can be got into a seedable condition, in a warm sheltered spot, and transplanted when large enough. The best sort for a seed-bed is a good heavy loam, stiff enough not to fall away from the roots when you are transplanting, as a sandy soil is apt to do. Rake the bed with a sharp steel rake till the soil is as fine as you can make it. Mark furrows 15 inches apart and ¼ in. deep, drop the seed 2 to 3 in. apart, cover and firm the earth well over the row. A common hoe is a very convenient tool for that purpose, a good pat with the back of it brings the earth into close contact with the seed, which is a very important element of success in the planting of all small seeds. As soon as your plants are—for asters 3 to 4 in., and for phlox 5 to 6 in. high, they are ready for transplanting, which is best done on a cloudy day after rain. Remove with a garden trowel two out of every three plants in the row to wherever wanted; those that are left are at a suitable distance apart for flowering, and make a good reserve for cut flowers, when you can cut freely without robbing your border, and also serve if you grow named varieties to keep the names of each sort without labeling the plants in the border.

Last season plants of Phlox Drummondi grown in this way from seed sown May 4th, came into flower on July 12th, and remained in bloom till November. Asters sown April 21st, came into flower August 2nd, were at their best from August 15th to September 5th, and were all over when frost came. To have the best flowers, which are always the first to open, in bloom at exhibition time, it would be well to make a second sowing two or three weeks later.

There may be some kinds of asters that require a longer season to reach maturity than is available planting in this way, but I have found it a perfect success with the following varieties :— Comet, Victoria, Dwarf, Chrysanthemem, Queen of the Market, Goliath, Emperor, Rose, Globe, Truffants, Peony, Perfection, Quilled German, Prince of Wales, Japanese Giant, etc.

Ottawa. R. B. WHYTE.

VIOLETS.

THESE "wee modest blue flowers" are never out of fashion, all the world loves them for their sweet refreshing fragrance. Favored indeed are they who live in climates where the violet will live without protection and flourish out of doors. Among all violets, whether wild or cultivated, our choice for outdoor culture at least, is the Double Russian.

With us it is decidedly the hardiest double violet. The foliage is distinct, the flowers are unusually double, very large, and a lovely deep unshaded purple in color. For fragrance it is almost unequalled, and it is the only double variety that will survive the winter here in good condition without protection.

It is to be regretted that so fine a variety positively cannot be forced for winter flowers. With the aid of a cold frame they may be had in flower very early in the spring. This simple covering of glass starts them growing long before those in the open ground, bringing them into flower here easily by the 10th of April, and when grown in this manner, nice long flower stems are always secured. The double English violet of some catalogues turns out to be synonymous with this.

The single varieties are mostly quite hardy. There are dozens of varieties. European catalogues generally show long lists of them, but comparatively few of them find favor in American commerce. The variety California is at present immensely popular, it bears flowers of surprising size, and has the additional recommendation of very long flower stems, and robust growth. It forces admirably; the flowers have found a ready market during the past two winters, and the subtle violet disease, the nightmare of those who grow the violet for winter flowers, seems as yet to have spared the California.

Luxonne, a new French introduction, is now heralded as having a larger, more open bloom than the above variety, and likely to eclipse it.

The double flowering sorts have a charm all their own, and excepting the Russian all are capricious here under outdoor culture, and many and ingenious are the devices we hear of to winter them safely. Water seems almost more fatal to them during their dormant season than frost.

We have seen plants growing in a real favorable situation, utterly destroyed by a quick thaw followed by frost surrounding the crowns by ice; plants beside them, enclosed by rough boards and covered with hot-bed sash, to keep off rain and snow, come through grandly. Again, if the sash were leaky, they have killed quite as badly, as those unprotected. Anything that holds much water like coal ashes or rotted manure, must be avoided, newly fallen tree leaves or evergreen branches are most satisfactory. To cover a bed in late fall with a simple frame of one inch boards and a well-glazed sash, is really very little trouble, and one may then always depend upon a profusion of flowers in the spring. Swanley white, a sport from Marie Louise, is really unique, it bears large, very fragrant pure white flowers. Marie Louise, the best known of all, very popular for winter flowers, has blue flowers with base of petals white. Neapolitan light blue a very pleasing color.

Lady Hume Campbell, is in color identical with M. Louise in color, excepting that it is a shade deeper, its constitution is stronger, and in many places

it has supplanted that variety for forcing. Farquhar is a new candidate that proves scarcely as dark in color as the introducer claimed, however, it is a good grower, distinct in color and foliage; well worth further trial.

WEBSTER BROS.

Hamilton, Ont.

KATSURA TREE—CERCIDOPHYLLUM JAPONICUM.

RICH as we are in native species of trees and shrubs, each having its own peculiar charm, there is always great interest and delight in growing those from foreign countries, especially when proved to be of exceptional merit.

The katsura tree, although introduced into the United States more than twenty years ago, has not yet found its way to many Canadian homes; but anyone who sees this graceful tree cannot but have the desire of possessing a specimen. This tree has been tested at the Central Experimental Farm, Ottawa, for seven years, and has proved perfectly hardy. It is of pyramidal form, branching thickly from near the ground; the leaves are heart-shaped and red-veined, somewhat resembling those of the Judas tree *(Cercis canadensis)*, and are very pretty.

The specimens at the Experimental Farm have not bloomed yet, but we learn that the flowers are small and inconspicuous. The katsura tree is closely related to the Magnolia family. In Japan, of which it is a native, it attains a height of from 75 to 100 feet, and is a rapid grower.

W. T. MACOUN.

Central Experimental Farm, Ottawa.

EGGLAYING OF THE CODLIN MOTH.

PROF. Slingerland has been investigating the habits of the Codlin Moth. He finds that the egg is deposited upon the side of the fruit, and not in the calyx. It is a little smaller than a pin-head, flattened and transparent, so that the color of the apple shows through it. Under the microscope the surface is marked with lines, and looks like a fish scale At first they were difficult to make out, but afterwards easy.

After careful investigations he found hundreds of eggs in the orchard, scattered over the fruits. The young worm was hatched out in about ten days, and at first is little larger than a hair. It remains on the surface several hours, then crawls about till it reaches the calyx, where it works its way between the lobes, and enters the cavity.

The practice of spraying as soon as blossoms fall, is effective, because the calyx lobes are then open and the Paris green is readily deposited within the eye, and as the worm does not eat till it enters the eye, its first dose will be its destruction

The closing of the calyx and lobes soon after spraying is an advantage, because it keeps the poison from being washed away by rains; but if the spraying is delayed till after the calyx closes, it will not be so effective.

The second brood does not always enter the calyx, but eats in the side of the fruit, especially if protected by an overhanging leaf.

Our Affiliated Societies.

Advantages of an Affiliated Horticultural Society.

Sir.—Would you kindly furnish me with the following points of information *re* Affiliated Horticultural Societies in their relationship to the Ontario Fruit Growers' Association?

1. Are these societies founded on Provincial Acts, or on a constitution formulated for the purpose?

2. If a society on the old plan now exists in a town, how can it be changed or affiliated with your society?

3. Describe the exact terms of relationship existing between an affiliated society and your society.

4. What part of the collected funds goes to the parent society, and what advantages come to them by virtue of their relationship with the Ontario Association?

5. By what means are the greatest advantages secured to the members of each society, by internal draft or by initiation fees?

6. If the plan of affiliation is successful or helpful to local societies, how is it that this is not more generally known and everywhere adopted?

If a constitution is needed, send an example copy.

This is a matter in which we could be easily much interested, and in this town of some three or four thousand people, we should be delighted with such a society working successfully amongst us. Please give whatever information you have at hand bearing on the matter, and it will be most thankfully received.

B. Gott.

Strathroy, Ont., March 15th, 1897.

(1) Horticultural Societies are organized under the provisions of the Agriculture and Arts Act of 1895, and the Agriculture and Arts Amendment Act of 1896.

(2) By alteration of by-laws as provided by Section 13. (Note.—This must be done by the *members* of the society, not by the Board of directors).

(3) The members of an affiliated society, besides being entitled to every privilege of membership in the Fruit Growers' Association, receives the benefit, once a year, of a free lecture on some horticultural topic.

(4) Eighty cents per annum for each member. The free lecture mentioned in last paragraph, the Monthly Magazine.

(5) By the expenditure of its funds as provided by sub-divisions *(a) (b) (c) (d)* and *(e)* of sub-section (2) of section (9) of the Act. The premiums mentioned in sub-division *(e)* being nominal only. And also, otherwise; see sub-section (3) section (9). The words "by internal draft or by initiation fees" are not understood.

(6) The members and all others interested in the district and township agricultural societies, as also horticultural societies which had existed for perhaps twenty years or more, were fully impressed with the idea that the *sole* object of their organizations was to hold an exhibition once a year. Of late years the fact became apparent that these exhibitions, as conducted, had not advanced the objects contemplated by the Act. Three or four years ago an effort was made to have a few horticultural societies established and conducted more nearly in accordance with the Act. This course was regarded by most persons who were consulted as chimerical, on the principle that it was next to impossible to remove from the public mind such a deep seated impression. The societies organized and worked on this basis now number about thirty, and, judging from late developments, there is good reason for believing that the plan has passed its trial stage, and has become a decided success.

Simcoe.—Mr. D. W. Beadle, of Toronto, lectured to us on the evening of the 9th March. His subject was "The Production of New Varieties of Fruits and Flowers by Cross-Breeding." Af-

ter this, Mr. W. F. Kydd, of "Oakhill Farm," Simcoe, gave us a paper on "Growing and Marketing Strawberries." This was followed by a discussion on several topics, during which time Mr. Beadle answered a number of questions that were submitted to him. All present were pleased at the way Mr. Beadle handled the subject of the evening. A vote of thanks was tendered Messrs. Beadle and Kydd.

H. JOHNSON, *Secretary.*

REPORT OF WESTERN NEW YORK HORTICULTURAL SOCIETY, giving proceedings of the recent meeting in Rochester, last January; sent only to members, but anyone may join by sending $1.00 to John Hall, Rochester.

KINCARDINE.—We were much pleased with Mr. McNeill's lecture here on "House Plants and How to Care for them." We had an attendance of nearly 200, in spite of the rainy night. These 200 were all true lovers of fruits and flowers, and they gave the closest attention from 8 to 10 o'clock. The chair was occupied by Mr. W. M. Dack, editor of Bruce Reporter. We had also a brief musical programme.

JOSEPH BARKER, *Secretary.*

DURHAM.—Mr. McNeill's lecture was given us on the 20th, on "The Horticultural Possibilities of a Town Lot." We had an attendance of 150, presided over by Mr. Campbell, School Inspector for South Grey. We expect larger numbers for future lectures.

BRAMPTON HORTICULTURAL SOCIETY.—The membership is steadily increasing, the number at present being 110, an addition of 20 over the number for 1896. Of course the inducement is attractive, every member getting the HORTICULTURIST for the year and its gift of one plant, tree or bulb, besides our spring distribution, which this year consists of 1 oz. sweet peas, 1 clematis, 1 hydrangea (hardy) and 4 tuberoses. In the fall, each one will receive in the neighborhood of 80 bulbs, besides getting the Annual Report of the Fruit Growers' Association.

Mr. McNeill, of Windsor, is to give us a lecture on the 22nd of March, on "How to Grow and Care for House Plants," with answers to questions that may be put to him. We have issued posters requesting all the members to be present and inviting the general public, and as the Brampton orchestra will enliven the meeting with a musical programme and the members intend, as far as possible, to have plants in flower on the tables, we expect the meeting to be a pleasant and successful one.

HENRY ROBERTS, *Secretary.*

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 4,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

THE PROPOSED BILL regarding the San José scale to be brought before the American Congress is still more restrictive than the one advocated for Canada by this Journal. Not only are all trees, scions, plants and buds from foreign countries to be subjected to rigid quarantine, but they cannot even be moved from one state to another without a certificate from the Secretary of Agriculture, and if found infected, dealt with at the expense of the owner. The American nurserymen are indignant with the terms proposed. We think the least that our country could do would be to enact that no trees, plants, buds, scions or fruits be allowed to enter the Dominion, unless accompanied by a certificate from the Secretary of Agriculture for the U. S., or from the State Entomologist, that they are free from the San José scale.

OUR ENERGETIC MEMBER at Simcoe, Mr. H. H. Groff, who writes so frequently for these pages, has received an honor, which is well merited. A prominent and wealthy U. S. scientific hybridist has offered him a partnership in a very important line of scientific experiment. Such men as Mr. Groff are a credit to Ontario, for their enterprise in originating new varieties.

CANADA AS A FRUIT COUNTRY was the subject of an address by Mr. John Craig before the Field Naturalists' Club at Ottawa, on Thursday evening, March 11th. The whole Dominion was touched upon and special emphasis was laid upon the capabilities of the Province of Ontario. He stated that the total area in orchard, garden and vineyard in Ontario is 320,122 acres. There are about seven million bearing apple trees and about

half as many more not bearing. The yield of apples last year was about twenty million barrels.

SELF-STERILE APPLES.—The following varieties of apples are more or less self-sterile, that is, to be comparatively unfruitful when planted in blocks by themselves, without having other varieties near, from which their blossoms may be pollinated, viz.:—Bellefleur, Chenango, Gravenstein, King, Spy, Red Astrachan, Roxbury Russet, Spitzenburg, Talman Sweet.

ROBT. HOGG, LL.D., author of "Fruit Manual" (English) and of "British Pomology," Secretary of the British Pomological Society, and of the Fruit Committee of the Royal Horticultural Society, died on the 14th of March last. Since 1886 Dr. Hogg has been editor of the Journal of Horticulture, which work is now in the hands of his son.

MR. ALEX. MCNEILL'S lecture before the Waterloo Horticultural Society on the 23rd of March, was on "The Horticultural Possibilities of a Town Lot." There were about one hundred present, and the lecture much appreciated.

PAST EXPERIENCES and Future Prospects of Fruit Growing in the Canadian North-West, is the subject of a paper read before the Royal Society of Canada, by Dr. William Saunders.

THE COLD STORAGE WAREHOUSE for experimental shipments, which has been located at Grimsby, was completed and iced by about April 15th. It is just large enough to hold about one carload of fruit at a time. The first shipments will be made early in August, and kept up weekly until the scheme has been well tested. Tomatoes, early apples, and peaches will probably constitute the first cargo.

THE JAPAN CHESTNUTS promise to be profitable in Delaware, possibly they would also succeed in Southern Ontario, and it is quite worth while that our experiment stations should test them and report. One good point about them is their early and abundant bearing, but the quality is not equal to the American chestnut.

There are also several varieties of European chestnuts, *e.g.*, Paragon, Ridgeley, etc. Of these, the Paragon is counted the finest. A writer in R. N. Y., speaking from experience, says it is a healthy, robust grower, very prolific, and usually produces from three to seven nuts to the burr.

COLD STORAGE.—The Hon. Minister of Agriculture has made arrangements with the following lines of steamers for cold storage service, viz.:—The Elder, Dempster Co., Montreal to Avonmouth; Allan and Thompson lines, weekly, Montreal to London; Allan and Dominion lines, weekly, Montreal to Liverpool; and, possibly, Allan and Thompson lines, Montreal to Glasgow; also the Furness line, from St. John, N.B., and Halifax, N.S., to either Liverpool or London, fortnightly.

A special service of refrigerator cars will also be furnished on the leading railway lines. The Dominion will have an officer in Montreal to supervise the transference of the perishable products from car to boat, or if necessary to place them in a cold storage warehouse until the ship is ready. Another officer will no doubt be placed in England to give us shippers all needed information.

PROFESSOR CRAIG'S EXPERIMENTS IN SOUTHERN ONTARIO.—On the 20th inst. we had a call from Prof. John Craig, Horticulturist, of the Central Experimental Farm, Ont. He is investigating the grape trouble, known as the "Yellow Leaf," and arranging to carry on plot experiments with fertilizers, as the assumption that soil conditions at the present time are unfavorable; and that this condition may be corrected by the judicious use of chemical fertilizers.

For the prevention of plum and peach rot, and peach curl, Mr. Craig is conducting some experiments with Mr. Hilborn in Essex, and Mr. Burwell in Lincoln Counties, with the object of finding a mixture that will not be injurious to the peach foliage, and at the same time be cheap, effective, and easily applied.

PEACH PLANTING, according to Mr. Craig, is going on vigorously in the County of Essex. At Ruthven, for example, a small station near Kingsville, he saw four car loads of peach trees, all for planting near that point.

SINCE THE SAN JOSE SCALE has been found at Chatham, on trees imported from New Jersey, and the evidence seems to show that it has lived through one Canadian winter, Mr. Craig advises the *utmost caution* in importing trees from our neighbors to the South.

ALBERT REGEL'S HONEYSUCKLE *(LONICERA ALBERTI, REGEL).*

FEW hardy flowering shrubs outrival the honeysuckle in beauty and profusion of blossom, delicacy of fragrance, and general usefulness for ornamental purposes. The well-known bush honeysuckle *(L. tartarica)* is a prominent object in nearly every old garden, while the Scarlet Trumpet *(L. sempervirens)* and English *(L. Periclymenum)* honeysuckles are used very extensively for training over verandas, summer houses or walls.

Of late years many new species of greater or less merit have been introduced from foreign lands, and among them one of the most beautiful and desirable is *Lonicera Alberti.* This charming honeysuckle, which is a native of Turkestan, has been thoroughly tested at the Dominion Experimental Farms, and has proven hardy even in the North-West Territories. It is a small but graceful shrub, with pendulous branches, and is intermediate in habit of growth between the bush and climbing types; the leaves are narrow, dull green above, and glaucous beneath. The flowers which open about the first week of June, are of a bright pink or rose color, almost bell-shaped, and growing in clusters. When in full bloom this shrub is a very pleasing and attractive object. It is well worthy of a place in every Canadian garden.

W. T. MACOUN.

Central Experimental Farm, Ottawa.

Question Drawer.

Crinums.

935. Sir, — Can you tell me, through your valuable Magazine, how to succeed in

CRINUM FIMBRIATULUM.

growing Crinums and how old they need to be before blooming?

T. Tobin, *Fergus.*

Reply by Prof. H. L. Hutt, O.A.C., Guelph.

All the authorities I have read on the subject speak of it as free-flowering and easy of culture. Our own experience, and that of several to whom I have spoken about it, shows it to be quite the reverse. We have a few fine Crinum bulbs, which have been well cared for for the past two or three years, since we have had them, but they have not yet favored us with a flower.

C. L. Allen, Floral Park, N.Y., has written an excellent book on "Bulbs and Tuberous-rooted Plants," and might satisfactorily answer the question.

Reply by C. L. Allen, Floral Park, N. Y.

Subscriber.—1st. The Crinum is a provoking subject to manage; while it is of the easiest culture, it is a very difficult one to grow, away from its native habitat. Most of the species are evergreen, and require but little rest; during this period they do not dry up, simply rest, and must have occasional watering—very light—but sufficient to make good the loss by evaporation. This necessitates their being grown in a greenhouse, where they can be grown without any difficulty, only that they require a very large pot, and considerable room, which, in view of their short period of bloom, can be better employed. *C. Amabéle*, the most showy of the class, will require a tub, two feet in diameter, which for an uninteresting plant, excepting when in bloom, is an expensive waste of room.

Many of the species can be grown nicely in the garden, when treated in the same manner as the Gladiolus, but they will annually grow smaller, from the fact that our seasons are not sufficiently long to perfect their growth. Grown in this way they will rarely flower more than twice.

2nd. Offsets, in the greenhouse, will make flowering bulbs in two years.

Cherries for Profit in Lincoln Co.

936. Sir,—Please name most profitable cherries to grow for market in Southern Ontario.

A Subscriber, *Grimsby.*

We would recommend of the sweet, Early Purple, Governor Wood, Black Tartarian, Mezel, Napoleon and Windsor; and of the sour, Richmond and Montmorency.

White Grubs in Strawberry Beds.

937. Sir,—What must I do in order to destroy the large white strawberry root-eating grub or maggot?

R. Burns, *Parkhill, Ont.*

Reply by Dr. Jas. Fletcher, Ottawa.

The insect referred to is probably one

of the White Grubs, a name given to the preparatory stages of the different species of the June Beetles These are frequently very destructive in strawberry beds, in the second year of their growth. For this reason many fruit growers have adopted that method of growing strawberries in which the young plants are set out one spring and the crop is taken from them the next season and the plants are then ploughed up, and a fresh bed is started. The first year the plants are so small that the beetles are not attracted to them to lay their eggs, and by plowing up the second year, if eggs have been laid that season the young grubs are destroyed before they have grown large enough to be very destructive. Mr. Craig tells me that this method is now generally practised by growers who cultivate strawberries in a large way for commercial purposes, so that in this happy instance we have both a satisfactory horticultural method, and one which serves as a good remedy for controlling one of the worst insect pests of this important crop.

Small Flies in Window Gardens.

938. SIR,—How can I get rid of those very small flies that come out of the rich earth in the potted plants? Does it show it is too rich?

R. H. LIGHT, *Kingston.*

Reply by Dr. Jas. Fletcher, Entomologist, Experimental Farm, Ottawa.

It is impossible to give the exact name of the fly referred to above without specimens, because there are several species, the *larvæ or maggots* of which occur in the earth of house plants. It is probably a species belonging to the genus *sciara*, and is possibly *sciara inconstans* of Fitch, but it is just as likely to be some other species.

I do not know of any better method of preventing the presence of these maggots than the liberal use of very finely ground tobacco dust. This, of course, is a very safe thing to use, and other remedies would probably be less safe with the comparatively tender house-plants. The use of such substances as kerosene emulsion, or hot water even, and especially of bisulphide of carbon, are all attended with some danger, except when used with caution and some preliminary experience. The efficacy of the tobacco dust is much greater if finely ground.

The question as to whether the soil is too rich must be decided by the behaviour of the plants. If too rich soil is used, the plants are apt to run too much to leaf instead of blossom. The maggots of these flies feed on the decaying vegetable matter in soils, so that their presence would merely indicate that the soil contains this material. The tobacco dust not only destroys insects but has valuable fertilizing qualities.

Borer in Acacia.

939. SIR,—Can you give me a preventive, or a destroyer of the borer that has begun working in the blackthorn acacia? We have beautiful specimens of the honey acacia, forty feet in height and thirty-five years old, and our grounds would be spoiled if these were destroyed.

MRS. W. L. TYSON, *Clarksburg.*

Reply by Jas. Fletcher, Experimental Farm, Ottawa.

I regret to say that there is no practical remedy for the Locust Borer. When the trees are not too large, they can, of course, be washed with one of the alkaline washes, which are so efficacious against the well-known borers in fruit trees; but when the locust or acacia trees have grown to a large size, it is impossible to do anything to preserve them against the attacks of the borer.

Fertilizers for Strawberries.

910. SIR,—In June number of HORTICULTURIST I noticed you recommend nitrate of soda and phosphate of lime as a fertilizer. I have a few acres of strawberries, and wish to apply it. Please tell in next No. what proportion, and how to apply it without injuring foliage ; or would wood ashes do in place of lime ; also, when to apply it.

Reply by H. L. Hutt, B. S. A. of O. A. C., Guelph.

Articles recommending this or that fertilizer for this or that crop, without any reference whatever to the kind of soil upon which it is to be used, are very often misleading. Probably the most unsatisfactory kind of questions we are called upon to answer are those relating to the use of commercial or special fertilizers, because they can be answered only on general principles.

Barnyard manure is a general fertilizer, and we seldom go astray in applying it to any soil for most any crop. Commercial or special fertilizers are intended to supply some special element of fertility, and their value upon a particular soil depends very largely upon the richness or deficiency of the soil in that particular element. The question then is not only what is the best fertilizer for some particular crop, but what is the best fertilizer for my particular soil ? I believe this cannot be more satisfactorily answered than by each one experimenting for himself on a small scale. The information so obtained would be of infinitely more value to such an experimenter than all the theories laid down by writers.

Camellias and Heliotropes.

911. SIR,—I wish to know if Camellias can be successfully propagated from cuttings, and the best time and manner of doing so. Also, the best time for taking cuttings of Heliotrope.

MRS. A. J KYLE, *Wiarton, Ont.*

Reply by Prof. H. L. Hutt, O. A. C., Guelph.

Camellias may be grown from cuttings or layers. The cuttings should be taken in August from the ripened shoots of the preceding summer's growth. These should be firmly planted in the soil, and kept in a frame where the temperature and moisture can be controlled. By the following spring such as have rooted will show signs of growth, and may be potted off. Seedlings of the single varieties are generally grown as stocks, upon which the double and variegated varieties are grafted by inarching in the early spring.

Heliotrope cuttings may be taken at almost any season when good growing shoots are to be had.

How to Kill Poplar Suckers.

912. SIR,—In the March issue of THE HORTICULTURIST, in my communication, *re* "Poplar Suckers," I am made to say "every sucker even TWO FEET from stumps, were killed. It should read TWENTY (20) feet. Kindly make correction.

L. FAIRBANKS, *Whitby, Ont.*

Falling Gooseberries.

913. SIR,—What is best to prevent the dropping off of gooseberries when about half, or two-thirds grown ; there is a worm in every fallen berry ?

R. BURNS, *Parkhill.*

Reply by Jas. Fletcher, Central Experimental Farm, Ottawa.

The dropping of Mr. Burns' gooseberries is undoubtedly due to the injuries of the gooseberry fruit worm (*Dakruma convolutella.*) The egg from which the caterpillar emerges is laid by a small dull gray moth on the green fruit. As soon as it hatches, the young caterpillar bores into a berry and feeds upon the pulp. After it has eaten out one berry it fastens another to it by silken threads and devours its contents. In this way it sometimes destroys 4 or 5 berries before it is full-grown, which is about the time the gooseberries attain

their full size. It then lets itself down by a silken thread and buries itself a short distance beneath the surface of the ground, where it spins a dark brown cocoon, inside which it remains until the following spring. The only remedy which has given any results, is picking by hand all the injured berries as soon as they show by turning prematurely red, that they are attacked. Letting chickens run among the bushes both before the fruit is ripe, and late in the autumn, it is claimed is a good plan, as the hens devour many of the insects. It is also advised to destroy the fallen leaves and rubbish from beneath the bushes in autumn, so as to destroy any cocoons spun at the surface of the ground.

———

Cranberry Growing.

944. SIR,—Would you or some of your members give me information about planting and cultivation of Cranberries. Would you plant seed in the marsh or start in a bed, and transplant bushes afterwards? Will the bushes grow in water and if so to what depth? A reply in your next number will greatly oblige. Yours truly,

R. A. C.

Cranberry growing is not always a success A large bog was made artificially at Walkerville, at very great expense, and has so far proved a failure. But where natural conditions are favorable, so as to reduce the great expense of establishing the plantation, they are usually profitable, for after the bog is once completed and the vines in bearing condition, the culture is simple and inexpensive. The *New England Farmer* gives the following instructions for preparing and planting a patch: A piece of low, swampy territory is selected to begin with. From this all the trees, bushes, or whatever growth may exist, are thoroughly cleaned out and the roots eradicated. Then the turf or dirt is taken off and the bog ditched and leveled. The old fashioned way of getting the level by the water and straight edge can not be improved upon for accuracy where the bog is well ditched. The level place is then covered with some four inches of coarse sand—some put on five—and the coarser the sand the better, if it will not interfere too much with the growth of the vines. The bog is then ready for the planting of the vines. the only fertilizer employed is to sometimes put a trifle of guano on the top of the plant, which works down through the sand to the roots of the vine. Three years must usually pass before the vines bear fruit, and they are generally not in bearing condition until the fourth year after planting. Some bogs on the Cape are still in good bearing condition that have yielded fruit for more than thirty years Sometimes the vines are mowed down closely, but they come up again and bear more vigorously for cutting. The chief attention required is to keep down the weeds and rushes, which are usually not troublesome if not neglected, and to watch the enemies of the vines, the principal of which is what is popularly known as the fire worm. If they get in unobserved, a promising lot will be completely ruined in a few days, and they do their work so rapidly that they are well named the fire worm. Of late years they have been quite destructive. The remedy for them is a tobacco wash and it generally proves very efficacious if applied in time. The cost of producing a barrel of Cranberries all ready for market varies from three to four dollars per standard barrel of 100 quarts. It is safe to put down the average market value at $7.00 per barrel.

Open Letters.

Should the Importation of American Nursery Stock be Prohibited?

Sir,—I read with much interest your article on the San José scale insect in your March number, and note that you recommend farmers' institutes and other farmers' gatherings throughout the land to pass resolutions requesting the Department of Agriculture to "either prohibit the importation of fruit trees and plants from the United States, or else that all trees for importation be subjected to the most strict quarantine and not be permitted to cross the lines unless a sworn certificate of an expert entomologist can be first secured by the shippers at their own expense, that the stock has been thoroughly examined, and proved to be free from scale" From your statement of the case it would appear that it is perhaps desirable that the Government should take some steps in the way of examining American nursery stock before it is admitted to the country, though I am not sure that your recommendation is really the best, and would feel inclined, for example, to think that it would be more simple and more effective to restrict importations to such States or localities as are known to be free from the insect. I desire, however, to point out that any suggestion looking towards the total prohibition of importations of American fruit trees and plants is one which would require the most serious consideration before being allowed to pass into law. I beg to draw your attention to two features of the case

1st. The authorities of the Dominion Government Experimental Farm at Ottawa state that the *Americana* varieties of plums [De Soto, Hawkeye, Stoddard, Wyant, Miner, etc], are the only ones suitable for the greater part of the Province of Quebec and Eastern Ontario, where the European varieties fail. The cultivation of these American plums has developed enormously in Iowa, Minnesota and the Western States, one authority estimating that from 100,000 to 150,000 of these trees are planted each year in the State of Iowa alone. With the exception possibly of the first named, I am inclined to think that it is impossible to obtain trees of any of these varieties, in any considerable quantity, from any nurseryman in the Dominion, or even from all combined. The reason for this is, that most of the Canadian nurseries are situated in Western Ontario, and their proprietors are apparently not alive to the needs of the Province of Quebec in regard to plums; and farmers in the East must either neglect this branch of horticulture, or purchase from nurserymen in the Western States. Would it be just or right to pass a measure which, though it might not seriously injure Western Ontario fruit growers, would yet very greatly handicap those who live in the East and North?

I am further informed by the authorities of the State Agricultural College of Iowa that the San José scale is unknown in that State.

2nd. The possibility must not be ignored that, if American nursery stock were prohibited, Canadian nurserymen might combine and raise their prices throughout the whole country, greatly to the detriment of all Canadian farmers.

Montreal, March 15th. M.

Discouraged.

Sir,—I have taken Canadian Horticulturist for fourteen years but must now quit on account of poverty. I rented a small farm with every convenience, rent and taxes, etc., $100 per annum. Drouth and rust, and not forgetting grasshoppers, about cleaned me out; prices, you know. I picked for a grocer 1 bush. crabs, best I ever saw, put them in clean new baskets, he gave me 20cts. in trade, he had them ordered. A gardener here was asked for a basket of crabs, he picked them and took them to the house, they said *thanks*, that's what we are living on; we did think the hens were going to help, but McKinley Bill will fix that. I came from England seventeen years ago, have wished 17,000 times I had never seen the country. Some of the best of workers here have lost their homes and come to the hammer; still they wish to encourage emigration. What for, to help us starve.

S. P., *Wingham.*

Spring's Active Work.

Sir,—In the cool pleasant days of early spring, when one's enthusiasm and activity is high for the planning of the flower garden, we are apt to think that we are possessed of abundance of natural wisdom, that will lead to success in all we undertake, and we are of the opinion that anyone can raise flowers and plants without the general information required to make it a success. Of course at the end of the season we note our disappointment and failure. Now I think we may overcome some of these difficulties, by careful observation and reading our Canadian Horticulturist, or any good floral publication that will give us some knowledge in planting, habit and growth of seeds and plants that we intend growing. Many flower growers I know do not look into a magazine to seek information or advice from the experienced men and women who have made a lifelong study of flowers and plants.

When the out-door work in the garden commences in April and May, it is certain that we will all feel better and made brighter by the result of our labors, while we must not forget the steady and healthful employ-

ment it has been to ourselves and thousands more, we think it can not be estimated. Flowers are soul food for many. Go and visit them before breakfast, and you surely will find relief and profit in health and happiness.

Spring's active work is to prepare our soil, purchase our seeds, plants and vines; then when all are planted, our work is over, till our tiny little plants make their appearance, when we must work early and late to get our reward.

I will not attempt or advise the readers of this Journal what to plant, as there are many flowering plants and shrubs, to suit the taste and purpose of every lover of flowers; and therefore it would occupy too much valuable space in these columns to enumerate all varieties grown, and what purpose, location that each planter required them for.

Flower growing is fascinating, and a genuine flower lover is never discouraged by failure, and would say to all, have flowers somehow, no matter how limited your ground may be. You cannot engage in a more healthful work. If you have had disappointment, be not discouraged, try again, it will be with increased knowledge. Read, study and observe, and you will surely succeed that will repay you for your trouble.

E. Hersee, *Woodstock.*

Wild Native Stock for Grafting.

(See Question 897.)

Sir,—I would say, first, that there is more strength of root in natives. I took some wild trees, 1½ inches in diameter, cut them off at the collar and inserted two scions in each. I raised a mound around them so that the scions rooted also, and thus I had the strength of both roots. The result was a very rapid growth. One scion grew seven feet high the first year and bore fruit the second year. Some years I have sold over thirteen bushels off those six trees. I have bought quite a number of trees from nurseries, but have got more good from those six trees than from all the others.

John Dalgarno.

More Notes on the San Jose Scale.

Sir,—The article on the San José Scale in the March Horticulturist sounds a timely note of warning to Canadian fruit growers, and the resolution passed at the meeting in St. Catharines is a step in the right direction. Action on the part of the Government will undoubtedly be necessary before long, and the growers generally should familiarize themselves with the bearings of the whole subject, and keep up a wholesome agitation on the question.

The Ohio Legislature last year repealed its "Peach Yellows and Black Knot" Act, and passed a new Act providing for the eradication of those two diseases, but including also the San José Scale. A special bulletin (No. 72) was ordered by the State to be prepared and published by the State Experiment Station, which contains a detailed description of the new pest.

There has been more or less confusion as to the history of the Scale and as to the remedies necessary, so it might be well to point out a few of the main facts.

The Government Entomologist at Washington, Mr. L. O. Howard, has not only thoroughly worked out the life history of the insect, but has carried out an exhaustive series of experiments with a vast number of washes. A complete record of these experiments was prepared for *Insect Life*, by C. L. Marlatt, the Assistant Entomologist, and may be found in No. 5, vol. vii. of that publication.

The San José Scale is similar in some respects to the Oyster Shell Bark Louse, to which it is nearly allied; but there are one or two important differences, which make the San José Scale infinitely harder to exterminate. The Bark Louse has but one brood a year and winters over in the egg state. The San José Scale is viviparous—that is, it does not lay eggs—and there are several broods during the year. The female winters over in the nearly full-grown condition. It commences to bring forth living young in May, and continues the process day after day for six weeks. By that time some of its progeny are also breeding; from 38 to 40 days being about the time occupied by a single generation.

Three female Scales if left unmolested on a tree would probably kill the tree in three or four years. These facts indicate the rapidity with which this new enemy increases and the consequent difficulty of controlling it.

Kerosene emulsion applied in May and June has been recommended; but the diluted emulsion, while fatal to the crawling larvæ, will not destroy all the Scales; and as the young larvæ have formed a protective scale two days after birth, this remedy would not be satisfactory unless it were applied day after day for a long period. Pure kerosene emulsion even, is not always fatal to all the Scales, and will seriously hurt a peach tree. In the experiments I have referred to, of which there were more than forty in number, a great many washes and emulsions were used, including all the California washes. The following conclusions were arrived at.

1. The California washes are hardly effective in the East, even when the usual strength is doubled.

2. Lye washes are too expensive when used at the necessary strength, and then the health of the tree is endangered.

3. Pure kerosene kills the Scales, and the peach tree, too. The apple might stand it in mid-winter, but an element of risk is introduced.

4. Kerosene emulsion, pure, endangers the life of a peach tree. and diluted with one part of water is not thoroughly effective.

5. The Resin wash, to be effective, must be six times the summer strength, and its preparation then becomes cumbersome and expensive.

6. The Whale-oil soap wash, 2 lbs. to the gallon, is absolutely effective against all the Scales. Two thorough drenchings, one after the foliage has dropped in the fall, the other just before the blooming period, are enough. This wash is thin enough when cool to be sprayed through the ordinary nozzle.

The evidence gathered everywhere is all in favor of this whale-oil soap wash. Of course where trees are very badly infested—which one hopes may never be the case in Canada—it would be advisable to cut out and burn the infested portions at once.

As to this vile addition to our too numerous pests, it is an excellent thing to be alarmed in time. Forewarned is forearmed.

MARTIN BURRELL,
St. Catharines.

Fruit Growing in Manitoba.

SIR,—The following are a few brief notes and observations on the fruit harvest here during the past summer:

Apples.—Nine different varieties bloomed, six of these for the first time, but five only carried fruit to maturity, namely, Lieby, Anisette, Wealthy, Whitney and Blushed Calville. The latter is from Prof. Budd, of Iowa Agricultural College, six years planted. The fruit was larger, one specimen measuring ten and a half inches in circumference, but there was no blush; fruit dead ripe when picked on 15th September. Lieby, medium size, flattish, highly colored; ripe 26th Sept. Anisette, medium size, somewhat pointed, dull green in color; ripe 25th September. Wealthy, large, highly colored; ripe 30th Sept. Whitney, ripe 30th September.

Crab Apples.—These were an extra heavy crop, the limbs of Transcendent and Montreal Beauty having to be proped up with sticks to prevent them from breaking down. General Grant, Virginia and Sweet Russet bore this year for the first time The first mentioned variety was poor, but the last two were extra large, and fine in quality. All parties having crab apple trees in this locality had fine crops. One grower sold eight barrels. A good market is found in Morden for all we have to sell. The fruit is superior to that which comes from Ontario. I know this will sound rather strange, but it is nevertheless true.

Plums —The early ones were a failure. Cheney matured a full crop of "plum pockets," and the same may be said of Wyant, Chippawa and Rockford, although not to the same extent as the first named. Luedloff's Long Red and Newton Egg were loaded almost to the breaking down with plums of very fair quality The trees were almost entirely free from "plum pockets." Bicksley, a new variety, gave a few specimens this year for the first time, of very fine quality. The Weaver spurs are growing finely.

Cherries. — Bessarabian, p'anted in the spring of 1893, matured a few specimens of very fine cherries, for the first time. One of Budd's Seedlings (No. 475), planted 1892, carried a number of fine large, bright red cherries to maturity. Shubianca also carried some fruit, but the quality did not impress me very favorably.

Grapes.—Moore's Early carried over one hundred bunches. One-third of these ripened fairly well. I tried girdling the limb by taking out a ring of bark from the bearing canes early in August, and found that it hastened ripening eight to ten days One of the three Gibb grapes, planted in 1894, died the first year; the remaining two have grown well. I expect some specimen bunches next summer. Bacchus and Virgennes, planted 1895, are alive and made fine growth last summer.

Small Fruits.—Black Cap Raspberries bore an extra heavy crop. Older came into full bearing last summer. The crop was something grand. I am advising the planting of this sort here. The canes are easier managed, being of a more sprawling habit than the old varieties, which counts for a good deal in a prairie country where winter protection is essential to success. Fruit, rather soft, a poor shipper. The red raspberries bore a full crop. Kenyon, a good deal more than the others. I never saw red raspberry bushes carry so much fruit Of the six Sarah raspberry bushes, planted spring 1895, five lived and have done well. I will have enough young plants this spring to plant a row 150 feet long.

No protection is given to any variety of red raspberries Gooseberries were an entire failure with me. Currants an average crop. Strawberries, where not drowned out, were a good crop. I have been growing the Snider blackberry for years, but the fruit fails to ripen sufficiently early enough to escape injury by frost. Windom Dewberry vines were the most heavily laden with fruit on the farm the past season. I have only a few plants, but their bearing the past two years encourages me to enlarge my patch.

The rabbits have done a great deal of damage to me this year. About 600 have been already killed around the garden, but they appear to be as thick as ever. I have tried various washes, but with poor results. Gunny sack wrapped around the trees is the only reliable protection.

A. P. STEVENSON,
Nelson, Man.

A View in the Greenhouse at "The Gore," the Residence of Mrs. D Goldie, Ayr, Ont. *(From a photograph.)*

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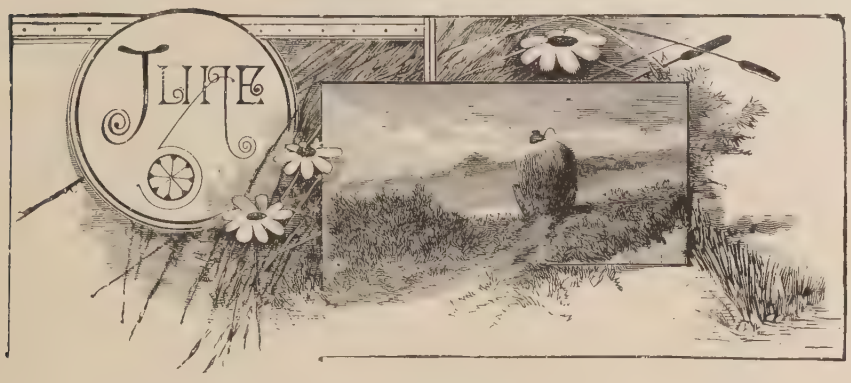

A VIEW IN A GREENHOUSE AT AYR.

OUR readers who have taken an interest in the views of the chrysanthemums at Guelph, will also be pleased with a glimpse of what is being done in a private greenhouse at Ayr. The wealth of huge blooms of chrysanthemums is magnificent, and is enough to inspire the most uninterested with some ambition to grow these beautiful children of Japan. The other photograph of Brugmansia arborea is also good, showing this plant in a cool house. This plant belongs to a class of ornamental plants, trees and shrubs, called Datura, which name is usually given to the annual species. The shrubby ones are known as Brugmansias. This one is a greenhouse shrub from seven to ten feet high, which was introduced into England from Peru in 1713.

We append a letter, which accompanied the photographs :

Sir,—I notice in Dec. '96 No. of the CANADIAN HORTICULTURIST, your query as to why more of your readers do not take more interest in your journal by writing for it. I have for some time wondered whether you cared to have any notes of experience from your readers or not, and therefore to show you my appreciation of your Journal, beg to send you a photograph of a view in the greenhouse here during chrysanthemum time ; our local artist failed to get a view of the entire length of the house which contained some hundreds of these lovely flowers Out of some thirty varieties the ones principally seen in the picture are Ivory, Nircus, Queen, V. H. Hollock, Golden Wedding, Mutual Friend, Thos. Emerson, Ada Spaulding and Louis Bonheur. Should you care to have it I would be very glad to give you some of the methods followed by me in growing these flowers to be published in some future issue.

I am sir, yours very respectfully,

THE GARDENER,

at "The Gore."

Fig. 1119.—Brugmansia arborea, in the Greenhouse at Ayr.

VIRGINIA CREEPER AS A LAWN OR BACK YARD SCREEN.

IN going over some negatives secured on a trip taken last autumn in company with Prof. Waugh, Horticulturist of the Vermont Experiment Station, through the principal apple growing region of Vermont, viz, Grand Island county, I came across one of which the accompanying illustration is a copy. It is offered to the readers of the HORTICULTURIST with a view of calling to mind one of the useful services our vigorous and sometimes unappreciated native *Virginia Creeper* may be called upon to perform.

FIG. 1120.—RESIDENCE AT BURLINGTON, VT.

Many people, especially those from the British Isles, like to secure to themselves a certain amount of privacy within the limits of their lawns. Hedge plants and stone walls give a stiff formal and forbidding expression to the front lawn—other causes may also prevent the use of these boundary agents. I was struck with the very general use that was made—particularly about Burlington—of the Virginia Creeper, in covering stone walls, summer houses, and back yard fences. The effect late in September was pleasing in most instances. Here and there it was over done. The illustration shows how it was used with good effect as a lawn screen. The growth was luxuriant and completely hid from view the lattice work fence over which it clambered. The varying height of the screen from 5 to 8 feet took away the hedge like effect which it otherwise might bear. The grounds about the house had evidently been laid out and planted only a few years ago which suggested the possibility of the vine screen being used to cover the nakedness of the lawn till the shrubs and trees were sufficient of themselves. The effect at any rate was very pleasing.

J. CRAIG.

THE VIOLA.

ON the alps in central Europe, on the Andes in S. America, as well as in our British fields and hedgerows, Violas of many species grow and flourish —true "Wildings of nature," and many of our modern garden varieties retain a robustness of constitution and are regardless of extremes which they must have acquired and inherited from progenitors who were wanderers by flood and field. This will almost serve to show that their culture is a very easy matter for in any good ordinary garden soil which has been enriched by manure, Violas will grow, and grow well. They are not particular as to situation or exposure, provided they are planted out early, and get thoroughly established before the warm weather sets in. The ground should be deeply dug in spring, or as soon as frost disappears, and a liberal quantity of decomposed manure incorporated with the soil, and also a quantity of soot—say a spadeful spread over every ten square yards. Just before planting, the surface should be broken up with a rake and made firm and fine, a good dry day being chosen for the work. Seeds may be sown now, in a shady portion of the garden, but I would advise amateurs to procure this year's requirements from any florist or nurseryman, as seedlings I think would need protection in winter.

F. BRUNTON.

Maplehurst, Grimsby.

DAHLIAS.

FIG. 1121.—DAHLIA.

NEARLY all the various forms and varieties of Dahlias have been obtained from some single flowered varieties imported to England from Spain nearly one hundred years ago. Being so easily grown, Dahlias are always prominent among our garden flowers, although of late the stiff show varieties of large size seem less popular than formerly. Indeed, the single flowered varieties have been much sought after by those who admire the Daisy and the Marguerite. Cornell Bulletin 28, gives many interesting pointers about Dahlias, from which we give some extracts with illustrations. Of late those single Dahlias have been made dwarf and compact in habit, and a race of them is known as "Tom Thum Single Dahlias," which are much appreciated.

To show what numbers of varieties of Dahlias have been originated, we note that in 1841 one English dealer had over 1,200 varieties.

"In the forties and fifties variegated flowers were in great demand. Dahlias were striped, banded, speckled, penciled, dotted, blotched, and marked in all sorts of curious ways. There was as much

ingenuity in the invention of these unstable compounds as is now displayed in designs for wall paper and oil cloths. These things were catalogued under the "Fancy" class, for the English divide the large-flowering varieties into "Show" and "Fancy." The "Show" section contains the "selfs," that is those varieties each of which has but a single color."

In the evolution of the Dahlias too much attention has been paid to color, and not enough to form. Those 1,200 varieties of 1841 were too much like 1,200 variously painted balls of two sizes. How much better would it be to have thirty pure, distinct single colors in forty different forms of expression!

There was not a single new or original idea in the evolution of the dahlia until 1873 at the very earliest, and whatever freedom or grace the dahlias now have is traceable to a single plant that bloomed for the first time that year. Instead of short, stiff, artificially formed rays, this flower had long, loose, flat rays with pointed or twisted ends and the peculiar red that is associated with cacti. This variety was named *Juarezii*, in honor of Juarez, President of Mexico, and first offered for sale in 1874, by a Dutch merchant. This was the parent of the

FIG. 1122.—MRS. A. PEART. A WHITE CACTUS DAHLIA.

so-called cactus dahlias, a name which seems far-fetched now-a-days. It was the color and not the form that gave the point to the comparison in the first place, and we now have a very great variety of colors in that form—colors that do not necessarily remind one of cacti. The white variety, *Mrs. A. Peart* (Fig. 1122), has a form very similar to that of the brilliant red cactus dahlia pictured in 1879. The cactus type has been kept quite pure, and of late years it has also been modified into some of the loose and flowing forms of the Japanese chrysanthemums.

The place for dahlias is the garden.—They can never have a place in landscape gardening because the first frost kills them. I often think their strength is dissipated when they are strung along a walk or other border. Personally, I believe in flower beds, but not in the middle of a beautiful green lawn. The grass has a quiet story to tell, and if dahlias intrude they should be put out for disturbing the peace.

THE OXALIS.

MOST of our housekeepers who are flower lovers have taken pleasure in the thrift and daintiness of the old-fashioned *Oxalis rosea* and also *Oxalis alba*, which they generally know as pink and white Shamrock; but they have not discovered half the possibilities of this gem of plants. It embraces a number of species of pretty, neat-growing plants, elegant in foliage and bloom, the latter being produced in great profusion, and embracing a wide range of color. It is one of the most satisfactory of bulbs for window culture. For potting, use a good rich soil with a sprinkle of sand in it, placing from one to three bulbs in a four inch pot; stand in a dark cool place for a few weeks to root thoroughly, then remove to a sunny situation in the window, or conservatory, in a temperature of about 60° Fahr. One of the best varieties for window culture is Oxalis alba illustrated by the accompanying cut. It will be seen that this is not the old Oxalis alba, but an improved Oxalis alba, having much larger blooms and of which the foliage branches out from a parent stem. Its dwarf, spreading habit and profuse bloom make it unsurpassed as a table plant. Flowers and leaves fold at night and open in the morning as with the old variety; unless the plant is grown in a partially shaded situation, when the flowers remain open all night. Oxalis Bermuda buttercup, the newest of yellows, is of more luxuriant growth, and blooms in greater profusion than Oxalis alba; one bulb will be sufficient for a five or six inch pot. The flowers are of purest buttercup yellow, and of great substance. Well-grown plants have produced as many as seventy-five flower-stems, and over one thousand blooms in one season. The bulbs of this Oxalis have been grown in the congenial soil and climate of Bermuda, until the bulbs have attained great strength, hence the wonderful flower productiveness. I might here mention Oxalis lutea, a splendid large, canary yellow, of strong, upright growth; the leaves of a dull green color, with a deep purple tint on the reverse side. This, in a small pot, will materially brighten up a collection of plants. While growing, the plant should be frequently turned so that all sides may get the power of the sun, that the growth may be symmetrical. Water regularly, making sure the roots, as well as the upper

soil, get the water, if you wish a thrifty plant, one which will, through its season remain a thing of beauty. During the resting season, which varies somewhat with different varieties, but which usually takes place about autumn, the plants should be watered sparingly, once or twice a week according to the moisture of the atmosphere. One last word; if you can only grow one kind, grow alba.

M. HODGES.

Commercial Greenhouses, Orillia.

FIG. 1123.—OXALIS ALBA (IMPROVED).

STEPHANOTIS.

MR. WALTER T. ROSS, Secretary of the Picton Horticultural Society, sends us the photograph from which the accompanying engraving is made, with the following lines:—

"Prof. Craig, asked me to send you the photo of my Stephanotis for THE HORTICULTURIST, giving you the history of it; he said a new picture would be

better, and if you would prefer it, I will try and get one printed from the negative, as I suppose the photographer still has it, and send it to you.

"I grew the plant in my office window, after it was started from a slip. It was nine years old when the picture was taken, and had forty-five large bunches of fragrant flowers and buds on it, which perfumed the air for quite a distance. The picture does not do the plant justice, as the photographer instead of having the plant and the camera on the same level, placed the plant in the street and the camera on the sidewalk, which was much higher, so this gives the plant a dwarfed appearance. The plant beside the Stephanotis is a small orange tree, with two oranges on it."

Fig. 1124.—Stephanotis.

FIG. 1125.—VIEW OF VEGETABLE GARDEN AND STRAWBERRY PLOTS, O.A.C., GUELPH, ONT.

The Orchard and Fruit Garden.

STRAWBERRY EXPERIMENTS AT GUELPH.

DURING the season of 1896, Prof. Hutt carefully tested one hundred and twenty varieties of strawberries, and as a result was able to prepare an excellent paper for our meeting at Kingston. In our engraving of the Garden at the College, may be seen the strawberry plot, with the stakes indicating the varieties, twelve plants of each being planted for the experimental purposes.

We quote the portion of the paper referring to early, late and large-sized varieties, as follows:

Early Varieties.

The first two or three pickings from a good early variety often prove more profitable than the whole crop from a later variety. In the following list the best early varieties are ranked in the order of their yield for three pickings previous to June 15.

Rank.	Early Varieties	Sex.	Date of first picking	Yield before June 15th.	Total yield.	Rank for total yield.
				ounces.	ounces	
1	Van Deman	B	June 8	80.00	141.75	47
2	Rio	B	"	70.75	153.50	43
3	Michel's Early	B	"	68.25	140.50	48
4	Warfield	P	"	67.75	294.00	1
5	Afton	P	"	59.75	264.00	2
6	Kossuth	B	"	55.50	113.25	64
7	Bessie	B	"	53.25	137.00	51
8	Gertrude	B	"	51.00	179.50	23

FIG. 1126.—VAN DEMAN.

Van Deman (*B.*)—A good grower and fairly free from rust. An early, perfect bloomer, one of the best to fertilize early pistillates; season of fruiting extra early; ranks first for early yield. The fruit is uniformly of good size and very handsome, of a rich dark crimson color and varnished appearance; firm and of good quality; should be in every collection.

Michel's Early (*B*).—A rampant grower, but rusts badly. Ranks third as an early yielder. The fruit is small, of poor color, and lacks in firmness. Very generally grown but cannot equal Van Deman as an early variety.

FIG. 1127.—MICHEL'S EARLY.

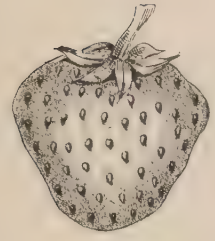

FIG. 1128.—WARFIELD.

Warfield (P.)—A rampant grower, making too many plants; rusts some; heads the list this year for productiveness, and ranks fourth as an early yielder. The fruit is not large, but of medium size and very dark crimson color; firm; a good market variety and one of the best for canning. On light soils and in dry seasons, it often dries up and gives very poor yields; but for heavy moist soils, it is one of the best.

LATE VARIETIES.

The late varieties are not as a rule so profitable as the early ones; yet a few of them are very desirable in every collection, to extend the fruiting season. Some varieties gave light pickings as late as July 21st. The Alpine was still fruiting when frost came; yet these very late pickings were hardly large enough to be taken into account. In the following table are given a few of those varieties that gave the largest yields, ranked in the order of their yield after July 1st.

RANKS.	LATE VARIETIES.	Sex.	Date of last picking.	Yield after July 1st.	Total yield.	Rank for total yield.
1	Edgar Queen	P	July 9	54.50	244 50	3
2	Equinox	B	"	53.25	138.00	50
3	Mrs. Cleveland	P	"	46.25	206.25	9
4	Dr. Arp	P	"	29.75	163 75	32
5	Belle (Crawford's 51)	B	"	28.50	180.50	22
6	Hatch Experiment Station 24	B	"	27.00	97.25	72

FIG. 1129.—EDGAR QUEEN.

Edgar Queen (P).—A new variety of great promise. Plant, very vigorous, but rusts considerably. Fruit large, rather light in color and moderately firm, valuable on account of its large late yield; ranked first as a late variety, and second for total yield.

Equinox (B).—Plant, a free grower, but very liable to rust, Berry, large, dull scarlet; seeds, few and deeply pitted; rather unattractive; ranked second

FIG. 1130—EQUINOX.

FIG. 1131.—MRS. CLEVELAND.

Mrs. Cleveland (P). This variety has received adverse criticism elsewhere, but has done remarkably well here. Plants are very vigorous, But rust badly; ranks ninth for total yield, and third among the late yielders. Berry is of medium size, rather light in color and only moderately firm.

LARGE BERRIES.

The comparative size of the berries of the different varieties is recorded by giving the weight of 50 average sized berries. In the following table those varieties bearing the largest berries are ranked according to the size of berries.

Rank.	Large Varieties.	Weight of 50 average berries.	Rank for total yield.	Firmness.
		ounces.		
1	Mary	21.50	57	V.F.
2	Bubach	20.50	18	F.
	Phillps	20.50	27	F.
	Gandy	19 50	19	S.
	Belle	18.00	22	F.
	Marshall	18.00	67	F.
7	Ohio Centennial	17.50	54	F.
	Williams	17.50	31	V.F.
9	Aroma	17.00	62	F

FIG. 1132.—MARSHALL

Marshall (*B*).—The plants of this variety are very large, make plenty of runners, and are but lightly affected with rust. The berry is very large, dark crimson and attractive; firm for so large a berry; only moderately productive, but worthy of further trial.

Mary (*P*).—A new variety of great promise. Plants are strong and vigorous. Berry larger than any other we have ever seen; well shaped; of good dark crimson color, and quite firm. Well worthy of trial.

FIG. 1133.—MARY.

FIG. 1134.—BUBACH.

Bubach (*P*).—Plant large and vigorous; beautiful foliage; free from rust; does not throw out many runners, but enough for a narrow matted row. Berry very large and of bright showy color; firm for so large a berry and of good quality; one of the best for home use or near market.

Belle or Crawford's 51 (*B*).—Plant vigorous and healthy; berries very large, irregular in shape, long, and many of them fan-shaped. The cuts are the exact size of specimens grown here. Color, bright crimson; flesh firm and of good quality. Late and very productive.

FIG. 1135.—BELLE.

BELLE.

FIG. 1136.—WILLIAMS.

Williams (*B*).—Plants are vigorous but somewhat liable to rust; fairly productive; ripens mid season. Berry large, very seedy: and dark crimson, and firm. A good market variety.

STRAWBERRY WHIPPED CREAM.—Rub two pounds and a half of strawberries through a sieve, and add half a pound of powdered sugar and one quart of whipped cream. Place a layer of macaroons or any small sweet biscuit in a dish, add a layer of the strawberry whip, then another layer of biscuit, and continue alternately until the cream is used up. Set aside in a very cold place, or on ice, and serve in the dish in which it is prepared.

EXTENSION OF FRUIT GROWING. II.

BY E. D. SMITH, WINONA.

WE can grow plums cheaper than any other place of wide area in America. We can grow them and make money at 10 cents per basket, basket included, in a year of heavy crop like the past year; if we get an occasional crop at good prices, which we are sure to do. There is no limit to the market for plum jams, when our jam factories and canneries can rely upon a steady supply of plums every year at moderate prices, they can then open up with confidence a trade with the tropical countries, that want our acid fruits and are willing to pay a fair price for them. I believe the low prices for our plum crop of 1896 was the best thing in the long run, we could have had. It will introduce our fruits into distant markets where they where hitherto unknown, and create a demand for our plums in countries that will in future become good customers, to say nothing of the home market in Quebec and the North-West, that will take enormous quantities of canned plums if cheap enough to compete with the 2,500,000 pounds of prunes imported into this country from California annually. The truth of the matter with regard to plums is, that in good plum districts we have been making unusual and unreasonable profits, but like grapes many years ago, we have up to the present, only had small areas under cultivation.

Now when our ten acre fields are coming into bearing we must not expect the fabulous profits, per acre, of the past, but must rather compare our profits from a ten acre field of plum trees with the profits from a ten acre field of corn or oats or other farm crop. It costs little more to care for a field of plum trees than a field of corn. We should be content to make a reasonable profit in these days when the majority of farm crops are grown at a loss rather than any profit at all. Let any man figure up the net profit of ten acres of oats at 20 cts per bushel, or 10 acres of corn at current prices and if he can figure out any profit on the crop and allow wages at $1 per day, and other actual costs of growing the crop, he is a better arithmetician than I am. Now there yet remains two most important fruit crops to discuss, viz., pears and apples, both of which can be grown over widely extended areas. I am very optimistic about both of these crops, I believe at present the outlook for the

greatest profit in fruit growing lies in pears; we have not enough good pears planted to supply the Canadian trade. Pears can be grown as cheaply as apples, our lowest figures so far have been $2 per barrel, net, here on the ground. At this price there is a mint of money in this fruit.

Everybody says "Oh! the blight will kill them," and this bogy scares them out of the notion entirely; but they will go planting potatoes that rot and are destroyed by bugs and that can't be sold when grown during two years now past, or wheat that is winter killed two years out of three and produces five or ten miserable bushels per acre or oats that rust, and are never afraid of these blights. A pear orchard can be grown with little appreciable loss from blight by careful attention. It is not the purpose of this paper to discuss diseases, but rather markets. I have said there are not enough pears now grown to supply our own market, some one wishes to know the proof. The proof lies in the fact that scores of car-loads of Bartletts are imported into this country every year.

Another proof is that we could not find enough Bartlett, Anjou, Sheldon or L. Bonne pears of first-class quality to supply our orders at Winona this year. Another proof is that none of these varieties sold for less than $3 to 4 per barrel in Montreal this year with all the loads of cheap fruit of all kinds from this and foreign countries on our market. But aside from this home market which if supplied with our pears properly put up would use double what we have now to offer, there is without a doubt a grand opening in Britain for this fruit, which can easily be laid down there by cold storage. All through the autumn pears brought fabulous prices over there, at least they seem fabulous to us. Think of four cents each at wholesale. The following is an extract from a letter written by W. N. White & Co., Ltd, prominent fruit merchants, of London, England:

"Pears — Not much doing in this article, in fact, we have never known the market so bare as it is at present. The few coming from France are realizing very high prices, in fact, were it not for their worth here they would have remained at home. We sold Catalacs, a stewing pear, yesterday, 56 in a crate, at 11s the crate, and 96's 15s. Some Californians on the market sold from 15s to 28s per box, according to quality. If any of your readers have got some good pears, no matter what country California or American, that will stand the journey to this country, they are sure to realize good prices."

This speaks for itself, no doubt these extraordinary prices were caused by a short crop in France from whence England draws her supplies, but France may have a short crop again, doubtless often has, and if such prices obtain in years of such low prices for apples, may we not suppose that at least fair prices are obtained other seasons? Unfortunately I have no record at hand, but this I do know; California growers ship their pears to England, double the distance we have to ship, and sell them at a profit. I know furthermore, we compete with France and every other country, in apples, wheat, cheese, and many other commodities, why cannot we do so with pears, a fruit we can grow to the highest state of perfection and in unlimited quantities over a wide area of Ontario and Nova Scotia. Undoubtedly the planting of pears has been badly neglected, as the packing of pears and all our domestic fruits has been. I want to ask a question now, and it is: "Why does California sell fourteen car loads of fruit in Montreal on a single day when we have fruits infinitely better in quality and appearance?" Surely

if they can find a profit in shipping this fruit 3000 miles over roads that charge very high freight rates and pay a duty in addition, we ought to be able to make a profit when in such close proximity to the markets, with moderate freight rates and no duty. I will answer the question. We are poor packers —California growers put up their fruit in tasty packages, they send only choice specimens, what they do with the seconds and thirds I do not know, I presume they can or evaporate them or make them into jam, but certain it is that only choice fruit comes here and it attracts the buyer and our fruit goes begging. I have heard merchants say that they ceased buying our fruit altogether, they could not depend upon getting it well and honestly packed, and they handled only California fruits.

Now is not this our own fault? There are enormous quantities of these very fruits we grow, viz.: peaches, pears, and plums, etc, displacing the growth of our own orchards, simply because we are trying to dispose of every available specimen to the city consumer whether he wants them or not. Better by far send only the choice specimens to market and feed these seconds and thirds to the hogs, if we cannot find a market for them at the factories. Let us make an effort to regain our lost trade, for I tell you, fruit growers here assembled, our home market is slipping away from our hands by reason of our gross neglect and supineness we have a market in Canada for double the fruit we can grow at present if we put it up in an attractive form, and never, never, cheat our customers by false packing. Now before I close; one word about apples the king of all fruits, for no matter how much we may praise up this or that locality for other fruits, apples are bound to be the great exportable fruit of Canada, for not only can we grow them to a higher state of excellence than any other country in the Northern Hemisphere, but we also have a larger area capable of producing regular crops than any other country where fruit of good enough quality to compete with ours is grown. We have the fruit; Great Britian and the continent of Europe, our own great Northwest, quite frequently the populous Western States wants it. Here are surely the conditions of a profitable trade: there is but one thing lacking, that is safe and cheap transportation facilities. It is of no avail to say apples were too cheap this year, they cannot be grown at prices current this year. I well remember hearing older men tell of the very low prices of grain when this country was first settled and yet later for fifty years prices averaged much higher; as soon as transportation facilities were offered grain brought good prices—so to-day grain in Manitoba is cheaper than here because of the cost of transportation to Europe. I contend that every first class apple in Canada could have been marketed in Europe this year, and our growers have received 75 cts. per barrel net on the ground for every barrel had we safe transport to Europe, to say nothing of cheap transport. Buyers of apples never have had confidence to buy apples at their fair market value, simply because they do not know when they ship them over whether they will arrive sound or whether half the cargo will arrive cooked, and be sold at any price obtainable for rotten and nasty fruit. I have conversed with numbers of gentlemen who have gone over with their apples and they say there is no doubt about our apples arriving as stated by receivers on the other side. They would not have believed it possible for apples put up here sound as possible to become ruined in two weeks on the cars and in the hold of an ocean steamer.

Now knowing this to be the condition of apples very frequently on arrival, not this year alone, but every year in the past, can it be wondered that buyers hesitated this year to pay over 50 cts. per barrel, for the big crop of apples in sight and their judgment has been shown to have been correct. I doubt if any man who has shipped forward regularly has made over 50 cts. per barrel out of the fruit, net on the ground, but had there been no slacks and no wasty apples on arrival 75 cts. would have easily been realized in spite of the freight rate to Britain 25 cts. per barrel higher than we frequently have had in previous years. Now see what this means to the farmers of Canada, 75 cts. per barrel for the enormous crop of this year could have been doubtless $1,000,000 more than they have realized, and would represent clear profit. The all important question arises: can we have safe transport? I say decidedly yes! it is the easiest thing in the world, if pressure can be brought upon the Steamship Companies to put in air fans or air pumps. All it requires to carry our apples over in perfectly sound condition is that the temperature of the hold of the vessel where the apples are stored shall be the same as the ocean air in October and November. We know very well that a barrel of apples put up in September may lay in the orchard exposed to sun and rain and a hundred changes of temperature and still be sound in November as the day it was packed, barring premature ripening caused by such rough exposure. Why then should the same apples shipped, fresh packed and stowed for ten days in an equable and cool temperature of the ocean, decay? No sane person would believe for an instant that they would, how then does it come about? In this way—the excessive heat from the engines so heats the hold that even the compartments containing the apples are so hot that the apples in some cases become cooked and in almost every instance parts at least of the cargo are damaged, and the whole lot of apples so advanced in ripening that they cannot be held in Britain for any length of time. If this were necessary we would simply have to put up with it, or send by the more costly cold storage, but it is not necessary. any one can see at a glance that passenger steamers could not be run on this happy go lucky principle, passengers would soon kick if the hold gradually got hotter and hotter as they neared the other side until at last they had to undergo the cooking process: and how do they prevent this heating of the hold in passenger steamships, why simply the air fans, that can be run by about one horse power, which conduct the cool air from the outside down to any of the decks and can be let on as required by a tap, there is no more reason for cooking our apples or injuring them in the slightest degree in going across the ocean, than there is in cooking them on the cars between here and Montreal. But the Steamship Companies will do nothing until forced to do it by the pressure of the votes of the people through the Government, and this surely will not much longer be delayed. Again, had the safe transport been provided our dealers would have long ago opened up markets in not only Great Britain, direct with the dealers and storekeepers there, but with dealers in Germany and other Continental countries where this season every apple grown in Canada could have been marketed at a good price.

The illimitable North-West can force us to the wall growing wheat, oats and beef and ultimately when milking machines become perfected also in butter and cheese, but apples they must buy

and there is no apple they will look at, when they can get our Northern Spys and Greenings.

Are they all going to become merchants or mechanics or the paternal acres still going to be worked? Are these acres to become barren wastes or are they still to be planted with something to produce a crop to sell? I judge they will be planted each and every year with something. Fruit planting will not be overdone until the profits are less than the profits from some other branch of farming. We cannot grow more grain here in the valley per acre than they can in other sections, so when fruit growing ceases to be more profitable than other lines of farming, land will be worth no more per acre, a fall of one half from its present value. Is there a grower in this room believes that such will ever be the case. I scarcely see on what ground any man can look for a permanent betterment of present conditions in the grain, dairy, or meat industries and I can scarcely see how any profit lies in any of these branches now. What then are the farmers of Canada to do. It seems to me reason would teach us to plant that which our competitors cannot grow. If you live in a peach section and have land suitable, plant peaches, for there are few sections can grow these. If on the other hand you cannot grow peaches, cherries or grapes; perhaps you can grow plums, if not plums then perhaps pears, and if not pears then you certainly can grow apples, the choicest in the world; neither the North West or the Western States, nor the Southern States, neither Australia, Argentine Republic, India, Denmark or Germany, all our competitors in some one or other lines of farming can grow apples to compare with Ontario or Nova Scotia. We have the whole world for a market, with safe transport and reasonable rates. In no other branch of farming have we so much of an advantage; so I can safely say planting of fruit orchards, vineyards, etc., has not been overdone in Ontario.

FLOWERS FOR WET CORNERS.

DO not despair if a portion of your lawn is swampy or boggy; consider yourself well favored, for here you can plant moisture loving plants, the poor man's orchids as some writers call them: irises, or flags *fleur-de-lis* (the royal insignia of France), than which there is nothing so beautiful and nothing that repays so well the little labor expended on them. The different species are English, German, Siberian, Spanish, and Kaempfer's from Japan. Plant the Japanese beauties in the wettest places, and the others along the edge of your bog. Place a clump of our native typha, or cat-tail in their midst; bring some yellow spatter-docks, with their rich, shining green leaves, from the ponds or low shores of the river. In this swampy situation astilbe does well; and by all means bring home with you from the brookside, myosotis, forget-me-not; some cinnamon ferns; the native brilliant cardinal and the giant blue lobelias, the swamp milkweed, *asclepias incarnata;* the native pitcher plant *sarracenia;* calopogon, a lovely bog orchid; sagittarias, or arrow heads, and pontederias, or pickerel weeds If there is sufficient water to form a basin, you can add nymphea, our native pond lilies, and the stately umbrellas of the Nelumbium. Your swamp will cease to be an eye sore, and you can feast your vision on the artistic beauties of its denizens all summer. We have said enough about herbaceous perennials; a volume could be written on their beauty and excellence.— Report Hort. Soc., '95.

LETTERS FROM RUSSIA.—XVI.

FIG. 1137.—JAROSLAV NIEMETZ.

WE have a great many interesting and novel plants from middle Asia, and the railroad now being built will furnish us with more. Some of these are edible and may be worthy of cultivation. At present they are under trial in the Imperial Botanic Garden at St. Petersburg. Being desirous to serve the Dominion Experimental Farms at Ottawa, the officers of which, willingly give me information concerning Canadian fruit culture, I have written to Siberia for seeds of the following plants, the further trial of which will be made at Ottawa and will show whether they are of use in Canada.

1. *Rubus Xanthocarpus.* Bur. and Franch. This new species of raspberry was found in 1885 by the Russian traveller, G. N. Potapin, in China, Province of Kanzu, and was previously described by French Scientist Bureau and Franchet. It is a low plant, about one foot in height with herbal, prickly, suspended leaves. The fruit is ovoid, light yellow, sweet and palatable. At St. Petersburg it ripens about the middle of July. This plant has proven hardy in Northern Russia and is fit for cultivation on a large scale.

2. *Ribes Dikusha.* Fish. (Blue currant of Siberia). This species was discovered by the Russian botanist N. T. Turchaninoff in Eastern Siberia and was described by botanist Fisher. It very much resembles the common black currant *(Ribes nigrum)* but there is a difference in the forms of leaves, calyx and pistil. In size and flavor, the berries resemble those of black currant, but are blue and green in color. Turchaninoff says that if eaten, they will make people drunk. The plant grows in moist places and is hardy in the botanic gardens at St. Petersburg.

3. *Ribes Procumbens.* Pall. Moss currant, this was found by botanist Pallas in Siberia. It is not new, but cannot be got in European gardens, because of the difficulty in distributing it by seed, and live plants could not endure so long a journey. Formerly the Botanic Garden at St. Petersburg got some live plants from Nerchinsk. The bush is low with creeping twigs, and yields brown berries, twice as larger as those of common black currant. It grows only in moist soil, along rivulets. The edible berries ripen late in summer and are very much esteemed by the inhabitants of Eastern Siberia.

4. *Ribes Diacantha.* Pall. Siberian gooseberry. The bush of this variety resembles the currant, but has prickly twigs and leaves. The berries red, subacid and are about the size of common

red currant and are much used in Siberia. Along the lake Baykal there are found varieties of this plant with bright red and dark red berries.

5. *Lonicera coerulea L. var edulis.* Turch. This grows in tall bush form, and resembles Lonicera coerulea Lon., but yields dark blue, oblong berries that are edible notwithstanding other varieties of lonicera, that yield bitter inedible berries. Around Nerchinsk it is very widely distributed on the mountains. The berries are picked in large quantities and sold in the local markets. They are very palatable and good for drying, for pies and other purposes.

JAROSLAV NIEMEIZ.

Winnitza, Podolie, Russia.

SOWING SEEDS.

THE operation of seed-sowing is one of the most important stages in the life of garden plants. We believe that it is often here that the future success or failure of the gardeners productions is determined. In the other stages in the growth of his plants the cultivator may, as a rule, do much to rectify the results of improper treatment, but in the case of the sowing of seeds, especially where first-class specimens for the show table are wanted, he cannot afford to exercise the least slovenliness. If he does his chance of having specimens up to the showing standard and in time for his show will be reduced to the minimum at the very outset, and his subsequent care and trouble greatly increased. It is extremely difficult to give definite rules for sowing, circumstances vary so much. The sizes of seeds and their conditions at sowing time, the state of soil, the appliances in the way of heating, etc., at the command of each grower, and other circumstances will affect the question. Yet, there are certain well-defined bounds which must limit the variations of method in seed sowing, in order that success may be ensured.

SEED TO SOW NOW.

Mignonette, as a border plant, must be sown to remain. Pulverise the soil well, make it somewhat firm, do not sow too thickly. It is important to thin early and severely, for any one plant left alone will soon cover a square foot. In pot culture it should be remembered that mignonette does not transplant well. The young plants must be thinned down to five, or even three, in each pot; if large plants are wanted later leave only three, or even only one. Mignonette is so accommodating that it may be forced for early flowers. A rich, friable soil is requisite, and plenty of light. But the plant will bear a close atmosphere, and even damp, in winter, fairly well For blooming in winter or spring, sow in 5 inch pots in August, and keep the plants as hardy as possible until it becomes necessary to put them under glass for the winter.

SHIRLEY POPPIES.

These are especially adapted for growing in masses, in beds, or borders, are of very free growth, and profuse bloomers. Sow where they are to remain in well-prepared soil, enriched with a little decayed stable manure; thin the plants out to give room for growth of those that remain; they do not transplant well. If the buds are cut early in the morning before they expand, they will last for some time in water indoors, and have a most charming effect if arranged with their own foliage. On the whole, annual poppies are *par excellence* the best

type of annual for those who have little skill in flower gardening, and who want something that will yield a good display of color with little trouble,

PORTULACCA. *Purslane Family*

This annual should be in every garden, it is a neat, bushy little plant, with saucer-shaped flowers, of very easy growth. The shades of color, are from white, or almost white to rich magenta. Sow when the weather is settled. Put the seed into the open border, and the lighter the soil, the hotter the season, the more brilliant will be the display of flowers. Sow in rows six inches apart, and cover the seed with fine soil.

F. BRUNTON.

Maplehurst, Grimsby.

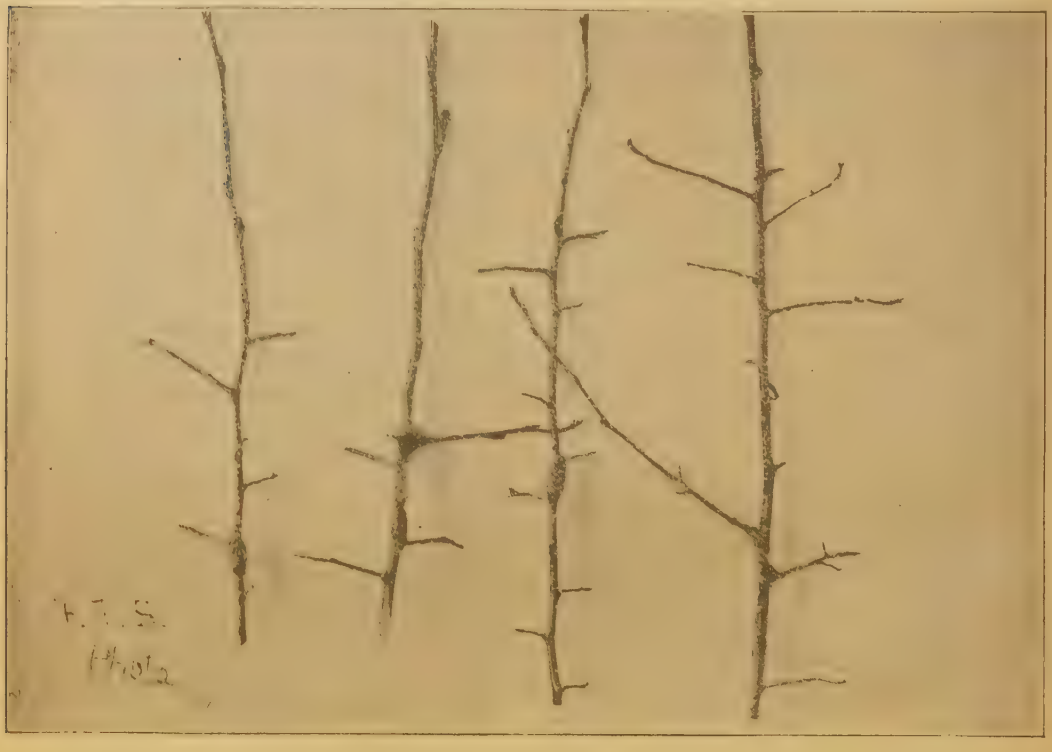

FIG. 1138.—EARLY STAGE OF DEVELOPMENT.

APPLE TREE TENT CATERPILLAR.

CLISIOCAMPA AMERICANA, HARRIS.

SOME interesting phases in connection with the life history of this insect were noted this spring. A remarkable feature was the rapidity with which the hatching took place succeeding the extremely cold weather of April 26th. On April 20th we had 19 degrees of frost, and on April 21st 7 degrees. Again on April 27th we were visited with 6 degrees of frost; yet, notwithstanding these low temperatures, on April 29th I noticed on some

cherry crab trees, *Pyrus baccata*, the young caterpillars crawling about very actively and beginning to feed on the then partially expanded leaf buds. This, it will be noticed, was only the third day succeeding a night when the temperature fell 5 degrees below freezing, and illustrates forcibly the vitality of the insect in the early larval form, and the promptitude with which the eggs hatch when food is prepared and on the arrival of favorable weather. It is a striking fact, too, that one notices in connection with the habits of this insect, that a large proportion of the egg masses are deposited upon varieties of trees which leaf out particularly early in spring, for instance, Pyrus baccata and other forms of the Siberian crab, Choke Cherry and various species of genus Prunus; also, that the eggs do not hatch till food is within easy reach. The accompanying illustration is from a photograph taken by Mr. F. T. Shutt, Chemist, of Experimental Farms, on April 29th, and shows the early stages of development of the destructive form immediately succeeding the hatching period. After taking the photograph the twigs with the young caterpillars still on them, were held under a water tap for five minutes, from which water of a temperature of 39 degrees was running. The larvæ not washed off appeared quite lifeless. The twigs were then placed in a sunny window. Before half an hour had elapsed the caterpillars were apparently in good health and enjoying a promenade up and down the twigs, not omitting though to show a marked preference for the portions represented by the partially open buds. They would seem to be well fitted to withstand the vicissitudes of the climate peculiar to "The Lady of the Snows," even outside the peach belt.

Fruit growers and farmers should pay more attention to these unsightly webs and promptly remove them from their trees as soon as noticed in the spring. If pains were taken to examine trees and remove the egg masses in the autumn or when pruning during the winter, the work in spring would be very much lessened.

JOHN CRAIG.

Experimental Farm, Ottawa.

TRIM THE SHRUBBERY.

IN many country and village door yards or lawns, the shrubbery consists of rose bushes, lilacs, wistaria and honeysuckle. Often these have not been trimmed for years and they present a most ungainly mass of tangled growth, often rendering it quite difficult to obtain even a fair view of the house by the passers-by. This untrimmed collection is frequently supplemented by rampant growing evergreen trees, that were all right for the first five or six years of their growth, but they were neither cut back nor topped and many of them now have branches spreading from ten to twenty feet. Where it is not thought best to remove them entirely, cut off the lower branches close up to the body of tree for a distance of about eight feet. This will remove the foliage that obstructs the view, and the remaining lower branches will droop a little, giving the tree a pleasing appearance. Other fruit and ornamental trees, by branching low, may obstruct the view, but judicious pruning will regulate this trouble.

Use the pruning knife freely on the shrubbery and if the bushes are of some desirable kinds try to improve the flowers they produce. Turn down the sod about them, applying well-rotted manure, ground bone or wood ashes, well mixed, and you will be more than paid for your trouble. Let this pruning be an annual operation.—*L. D. Snook in Fruits and Flowers.*

TRAINING YOUNG PEACH TREES.

CONSIDERABLE judgment needs be exercised in the training of a young tree, especially a peach, as it being a rapid grower, it requires more attention than any other of the tree fruits.

The training should begin at the moment of planting and be continued through the life of the tree. Growers differ as regards manner of thinning, at the time of transplanting, some prefer trimming to a whip, while others leave short spurs with one good strong bud on each. Although good trees can be grown by either method, the "whip plan" is preferable as stronger growth is more apt to be obtained. It is better to grow a low head tree, the first branches starting about 2 or 2½ feet from the ground. They will shade the trunks from the sun, which will lessen the liability to sun scald and be less subject to the forces of the wind. The fruit can be more easily gathered and pruning be greatly facilitated.

The trimming of the roots of the young tree is about as important as of the top. When the tree comes from the nursery, the roots as well as the limbs are more or less bruised The machine used in digging them in the nursery, will often tear the roots in a severe manner. All the roots that have been broken or bruised should be cut off clean and the others, shortened in at least ¼, the cutting should be from the under side that the raw surface may be down. The care of a tree before and at transplanting, requires nothing but common sense to make a tree succeed. A tree will suffer as much when its roots are exposed to the sun and wind, as a fish will when out of water. Protect the roots and replace them in a position as near their former one as possible, with the soil firm and of good quality and nature will do the rest.

It is well to have some definite plan as to the shape of the top to be formed. A good way is to sketch the outline of the proposed form, on paper, then when pruning, the plan may be carried along and the tree fashioned as near to it as possible. The trees must be watched closely the first season that all shoots which are not required to form the head, may be removed.

In forming the head, select four or five of the strongest branches which are distributed along the trunk for 12 or 16 inches and branch in different directions so that they may be evenly balanced. The following spring the top should be cut back ½, the place on the limb has much to do with the formation of the top.

If a tree be inclined to grow more rapidly in one direction than in another, by cutting back to a leaf bud located upon the inner or outer side of a branch, that branch may be made to grow towards or from the centre of the tree. I had several trees which had one part broken off, and by this plan I was able to re-grow a very evenly balanced top. Each succeeding spring the cutting-back should be ⅓ of the past season's growth, this answers also as a means of thinning the fruit when the trees come into bearing.

If this plan is followed, a block of trees may be grown which will be long-lived and profitable as well as a "thing of beauty" to the owner.

B. A. WOOD.

Kalamazoo Co, Mich.

SOME OF THE NEWER FRUITS.—II.

By E. Morden, Niagara Falls South.

Russian Apricots.—Those who some years since listened to glib tongued agents, and planted large areas with these trees lost a lot of money. After years of trial they are mostly dug out, and the planters ought to be wiser men if they are not. These apricots blossom very early, but the fruit rarely sets, and even when set seldom endures to the end. Apricots, in general, seem to be a delusion. Curculios favor their continuance.

Mulberries.—If we imagine a very sweet blackberry without its seeds, we have a mulberry. For those who like sweet, rich fruit, the mulberry will be ranked as delicious. The large fruited varieties seem to be rather tender for Ontario.

The Russian mulberry gives in some cases a large crop of small berries. As they fall about as soon as they ripen, we need sheets in order to gather the fruit. The birds are willing in this case to assist.

By planting several trees, some pistillate ones will be secured, and from these we may get delicious fruit. The tree, too, has remarkable foliage. Some of the leaves are entire, and many of them are notched and lobed in a great variety of ways.

Japanese Plums.—The Japanese plums are quite different in foliage from the European and American varieties. They blossom very early, hence, are not likely to be reliable every year.

In appearance, quality and season of ripening, the fruit varies greatly. As there is some confusion in their nomenclature, there is naturally a conflict of opinion in reference to varieties of merit.

The Ogon with me is a very early white plum with a deep suture. It ripens and drops from the trees much in advance of the ordinary plums. Its quality is nothing to boast of. The Abundance, which ripens later and is sometimes quite large, is likely to take a place and hold it. The Burbank seems to be gaining in favor.

Hataukio, a late reddish plum with a white bloom is worthy of trial. The fruit resembles the Lombard, but is handsomer and of better quality, I think. Some of the fruit falls, but some of it remains on the trees for three or four weeks. Picked in season it ought to bear shipping well. As many of the Japans ripen with the European plums, and must compete with them, it will be seen that they must possess a good supply of all around merit, if they hold a place permanently. Some of them may do this, while I think that growers should try them, I do not see how they can displace the older varieties.

In summing up the newer kinds of fruit, we cannot claim any commercial value for any of them, that would justify large plantations. Fruit growers with some enterprise and some spare space, should plant nearly all of them for home use and ornament. Should any of them develop commercial value, larger plantings may follow. He who, upon the advice of some agent, plants largely of a new fruit, in order to get ahead of the other fellows, need not be surprised if he finds himself in the rear.

JAPAN PLUMS IN IOWA.

SEVEN years ago, I planted a few Japanese plums in my trial orchard, that is situated eight miles south of this city. I had been led to believe, by Prof. Budd, that these plums were entirely worthless in our severe climate, he often having stated they were as "tender as weeds," therefore, my surprise was intense, when the second year from planting, my small trees were not only perfectly sound, after the thermometer had registered 22° below zero, but were loaded with handsome fruit. Since then, my first experiment with this oriental fruit, I have spared neither money or pains in collecting Japan plums, till I doubtless have the largest number of varieties in the entire North-West. I do not have the ground to set many trees of each variety—two to ten of a kind—except the Burbank. I now perhaps have over 50 trees in bearing, most of them just commencing to bear. On the older trees last year I had 25 bush. of these Japs. The Burbank, Normand and Abundance are best in quality, so far as fruited. The former is extra fine for canning. These older trees have stood 28° below zero, and bore a good crop of fruit; I refer more particularly to the Burbank. Kelsey is the only variety, so far, that winter killed; it is entirely too tender for this latitude. My object in planting these plums was not so much for commercial fruit, as to secure new seedlings cross-fertilized with our best natives, for I firmly believe all our best plums for this Prairie region must come from our native species, and my faith is backed up by a collection of over 100 varieties of our best improved natives, that gave me over 200 bushels of fruit last season: of many of these, like the Japans, I have but a few trees on trial. Some of these natives are better in quality than most of the Japs, but the latter possess *other* qualities that our natives do not possess. Some of these are extremely small pits, and long keeping and shipping qualities. In my judgment—judging from my success with these Japan plums—they have come to stay, if for no other purpose than indicated in this article, inter breeding with our hardy natives, and in the near future evolving a new race of plums that will be far superior to either species. I select the Japanese for this purpose, because they are very closely allied botanically to our natives, hence, easily cross with them; also their beautiful color and extremely small pits make them more desirable for the purpose indicated, than the domestic class. I have found the first and second winter, after setting these plums, the most critical, for after that they seem to become more acclimated, perhaps also the rooted system becomes better established, so the vital forces of the tree become stronger, and hence can resist extreme temperature far better than when first set out As I further test these plums and their American seedlings, I shall be glad to give my report of their success or failure to the readers of your valuable journal.

A. B. DENNIS.

Cedar Rapids, Iowa.

HOW TO MAKE MONEY ON FRUIT.

THERE are some precepts so important that they never grow old or go out of date. They are worthy of being impressed on the minds of all men, and some men evidently need more than one impress.

One of these venerable but patent precepts, these ever old and ever young truths, is the imperative and increasing importance of intensive culture in fruit growing. By intensive culture I mean diligent and time culture and liberal feeding with manures rich in the properties essential to perfect fruit.

It has been demonstrated that intensive culture in that it greatly increases the yield per acre, pays the general farmer, the grower of wheat, corn, cotton, tobacco, oats, etc. In fact that no other system really does pay him in the long run. How much more does this apply to fruit growing, where not only quantity is vastly more increased than is possible with the above staples, but where quality is also so vastly improved. And in fruit, quality is almost or quite everything.

A man who by intensive culture doubles his yield per acre of wheat or corn, simply doubles his dollars per acre. But the man who by intensive culture doubles his yield of fruit is pretty sure to so improve it in size, beauty and general excellence that its net value per acre will be quadrupled or even sustain a still greater increase.

My experience in fruit growing reaches back nearly twenty-five years. It has been chiefly in the culture of small fruit — strawberries, dewberries, blackberries and raspberries, but has embraced also grapes, peaches and apples. As there is an exceeding diversity of soils hereabouts, it has embraced likewise nearly every conceivable soil, the stiffest of red clay, rocky knolls, almost pure sand, black sandy loam with pipe clay subsoil, and so on up and down the gamut of soils good and soils bad.

This experience has impressed on me the paramount importance of two things, absolutely clean cultivation for small fruits and grapes, the sowing and turning under of pea vines or some green crop in apple and peach orchards, and the liberal application to all fertilizers rich in potash. Ten or twelve per cent potash, five per cent. phosphoric acid, and two or three per cent. ammonia, I find to pay best generally

Kainit or muriate of potash for the potash, acid phosphate or dissolved bone for the phosphoric acid, and nitrate of soda or cotton seed meal for the ammonia, should be applied in a larger or smaller quantity as actual experiment dictates. But a liberal application I have always found to pay best, provided always that in small fruits the weeds and grass are kept down. If a man is not determined to give clean culture, the less manure of any kind he uses the better. And I may say, the fewer plants he sets the better. While none at all would be best of all.

The largest yield of strawberries that I have ever seen reported in the state—over 11,000 quarts an acre—I made by clean culture and the liberal and repeated applications of above fertilizing ingredients.

Of course where large quantities of fertilizers are used, it must all be thoroughly mixed and applied broadcast. For small fruit, say one-third thoroughly mixed with soil before plants are set in spring, one-third as a top dressing over plants, middles and all in October, the remainder in same way

just before the plants are put out the following spring. When thus used, even a larger quantity than above stated can be profitably applied if thoroughly mixed with soil before planting, and if the fall and spring top-dressings are carefully applied, so as not to let too much fertilizer fall directly on the plants, especially if they are then growing and tender. No possible harm can result if they are in a dormant state. For vineyards and orchards I should apply as top dressing over whole surface, half the fertilizer in late fall and half in early spring.

O. W. BLACKNALL.

Kittrell, N.C.

THINNING FRUIT.

THE time has about gone by when the Canadian fruit grower can afford to despise the scientific side of his business, and follow haphazard methods. At one time peaches of all sorts sold at a high price, even without grading, and there seemed little need of spending time and labor in fertilizing the ground or thinning the fruit in order to make sure of fine large samples; but now the conditions are reversed, and small, mean samples of peaches, pears or apples are almost unsalable. Now the haphazard grower, the lazy cultivator, the careless packer, will fail, he will be discouraged, and conclude that fruit growing does not pay, while the grower that spares no effort to produce fine samples, and puts them before the public in an attractive style, will always meet with success.

The thinning of fruit is a practice little observed in Canada, but one that should be adopted without delay. It requires some courage at first to pull off and throw away one-half of the weight of plums or peaches on a tree, but it will pay, and pay well. Indeed it won't pay to neglect it for the half quantity will bring double, if not four times the price, because of increased size.

Last year Prof. Beach, of Geneva, N.Y., made three experiments at the station in thinning apples. The first was to take out the inferior fruit; second, to take out enough to leave the apples four inches apart; and third, to take out enough to leave the apples six inches apart. After the first experiment he found that the fruit had a better color, and one-tenth of it went into first-class fruit. After the second experiment 22 per cent. of the crop was first-class fruit, and after the third experiment nearly all of the apples were of the first grade.

At the Mass. Expl. Station, experiments have also been made with very distinct results, and we quote from Bulletin 44:—

The past season has emphasized the necessity of reducing the number of specimens of fruit on heavily loaded trees in order to save the strength of the tree and improve the size and quality of the fruit. With the apple crop this necessity is more marked than with any other fruit. Nearly all of our fruit trees possess the characteristic of producing one year so large a crop that they cannot mature a crop the next season, requiring sometimes several years to recover from the exhaustion.

On the station grounds it has been the practice for several years to thin all the kinds of fruit more or less, and we present in this bulletin a few illustrations of the beneficial and profitable results.

No. 1. Two full-sized Gravensteins of uniform vigor and productiveness were selected. One was thinned July

1st, the other being reserved for a check. The fruit set in great abundance and at the time of thinning, the two trees appeared equally productive. It should be said that if the tree had been thinned at least two weeks earlier, better results might have followed. As the fruit approached maturity a decided difference was noticed in favor of the thinned tree, but unfortunately for the experiment, a large per cent. of the fruit dropped prematurely, as many Gravensteins did in other sections of the State. The results therefore were far from satisfactory; nevertheless they indicate what may be expected when conditions are more favorable.

GRAVENSTEIN.	Firsts.	Seconds	Market Value.	Market Value.	Gain.
Thinned Tree	7 bu.	1 bu.	9½ bu.	4.45	2.33
Check	2½ bu.	2½ bu.	10¼ bu.	2.12	
Cost of Thinning					48
					$1.85

Deducting from this 48 cents, the actual cost of thinning, we have a net gain of $1 85.

THE CARE OF WINDOW BOXES.

WINDOW boxes are more often failures than successes. Why? Because they are not properly cared for. It must be borne in mind that a window box, from the exposed position in which it is placed, loses moisture very rapidly by evaporation The wind and air get at it from below as well as on the side, ends and top. Only that side next the building is sheltered. It will, therefore, be readily understood, if one stops to think about it, that a great deal more moisture must be taken from the soil in such a box, in a given time, than it would be possible to extract from the soil in a pot or box whose exposure is less. The secret of growing plants well in such boxes consists in giving not only a great amount of water, but in giving it often. Enough should be applied every morning and evening to thoroughly saturate the soil, and the way to make sure that the soil is wet is to keep on applying water till some runs off at the bottom of the box. If it is given in small quantities, it will not be long before the leaves begin to turn yellow, and very soon you will have a sickly-looking plant, and in a short time it will be dead; just because there was not enough water given to moisten and keep moist the roots below the surface.

One of the most satisfactory plants I have ever used in a window box is the common single Petunia. It will bloom profusely, is bright and fragrant, and soon covers the entire surface of the box, and droops over the sides until they are wholly concealed. The Madeira vine is pretty when planted about the edge and allowed to droop in festoons. The Heliotrope is a good flowering plant for such use, if care is taken to give water enough. It is fond of strong sunshine, but soon suffers if its roots are allowed to get dry. A scarlet Geranium will brighten up a window wonderfully, and a good plant to use with one, about the edges, is the Nasturtium, with its brilliant yellow and maroon flowers and pretty, pale green foliage, with which the box will soon be covered.—*American Agriculturist for June.*

Flower Garden and Lawn.

DWARF HARDY PERENNIALS.

IT is now that those who are happily the possessors of perennial gardens are being delighted, as one after another of their old favorites or new acquisitions display their individual charms under the influence of summer's onward march.

There is a charm in gardens of small dimensions, at least in those perennials that are of dwarf growth, and as yet as handsome in appearance as their relations of sturdier habits.

Some of the plants here mentioned have already contributed their share to the brightening of the garden and retired till another spring shall wake them to activity. Watch for them however if you have not already the pleasure of their acquaintance.

The Subulata Phloxes are indeed among the most showy of all perennials. Here they begin to show about May 10th, and remain a solid unmarred mass of flower for a full month. As a bordering for a walk they are always admired, for edging a bed of perennials or spring flowering bulbs we have never found anything more appropriate.

The foliage which can hardly be seen during the flowering period, is small and narrow; none of the varieties attain a greater height than 6 inches, but they spread quite rapidly. The pure white one Alba, when in flower reminds one of a drift of snow. One is white with a scarlet eye, another dark, rose pink, and very attractive.

The dwarf Irises claim attention in the garden of small dimensions. The English and Spanish Iris are bulbous rooted, valuable where hardy, but they are not entirely so here. The Siberian Irises grow about 18 inches high, are quite hardy and bear neat long stemmed flowers that are useful for cutting; the best are the pure white and the clear bright blue varieties. *Iris pumila* attains a height of not more than seven inches; the first flowers open about May 5th, and the plants are soon thick with clear purple blossoms, in shape exactly like a miniature Iris Germanica. There is a white variety of this species, and several that closely resemble *pumila* in color.

Aquilegia Bergeriana received from the Ontario Fruit Growers Association several years ago, proves one of the earliest, most dwarf and handsome of all. With us it grows only about 12 inches high and produces unusually large, well-expanded flowers, light purple in color, and each petal tipped with white. The cup is also purple banded at the outer end with sulphur yellow.

The Alpine Auriculas are easily raised from seed, if a first-class strain is procured one is sure to get some marvellously well-colored flowers; about seven years ago we raised a batch of them and they grew well for the start, but we had to give them the protection of a cold frame to make them behave well during the winter, as the plants attained size we thought the game scarcely worth the candle, as they say, and planted them in the garden with the intention of letting them live or die as they chose. Their situation was, quite unintentionally, on the north side of a spruce hedge, just about three feet from the lower branches. They wintered there perfectly, and have done so ever since; they show some good flowers and really fine colors.

Hardy pinks, among which the white variety, Her Majesty, deserves special, mention, are splendid for cutting; they are always prime favorites in the small garden, as are the hardy Primrose or Polyanthus, including the English Primrose. In some places these latter will require the protection of a cold frame.

Alyssum saxatile compactum is a superb, dwarf, yellow flower, a veritable sheet of gold in its season.

The Iceland Poppies (*Papaver nudicaule*), in the various colors are much thought of. *Aubretia Græca* too, with its pretty purple flowers, deserves attention. *Arabis albida* is a neat, very early and showy white-flowered plant, without which no collection is complete.

WEBSTER BROS.

Hamilton, Ont.

HARDY HYDRANGEAS.

STANDING pre-eminently among the most noble shrubs for the lawn is the Hydrangea paniculata grandiflora, introduced comparatively few years ago from Japan, it now beautifies the choicest gardens throughout America, and is grown for sale by the millions.

The snowy white or pinkish panicles of flowers which open in early September, are very lasting; in fact, if cut before they begin to wither they last splendidly all winter.

Just how to obtain the largest and finest flower heads from this shrub is not generally understood. Left to itself the bush will make a large growth in two or three seasons, the growth will then not be so rapid or vigorous, the new wood will be short-jointed, and the flowers while they may appear in great numbers, will look the size of those on young, vigorous plants. It is possible to have large, fine flowers from this variety for an almost indefinite time if the correct treatment is given. Hard pruning, after the style that Hybrid Perpetual Roses are pruned for finest flowers, should be adopted.

That is to say, instead of allowing all shoots to grow up, thin out, in the spring, all but the strongest, and shorten these to from six to eight inches from the ground, the result is large healthy foliage, and fewer flowers of greater size. A specimen bearing a few panicles, say 15 inches in length, will command attention where one left to itself may not. It seems hard to cut down the fine strong stems the following spring, but this sacrifice of good wood is the price of fine flowers.

The variety Paniculata has darker colored bark than the preceding, and its season is earlier, the panicles are borne more upright and are nearly pure white

in color; fine in itself as a variety, but never producing such immense flower-heads as the Grandiflora.

H. Pekinensis—This variety came to us from France; it is not yet widely distributed. In general habit of growth it resembles the paniculatas, the flower-heads are nearly flat instead of conical, the individual florets are white and exceedingly large, but the panicle is rather open and loose, not as prepossessing as it might be.

H. quercifolia the Oak-leaved Hydrangea, is a most beautiful shrub for foliage effects, but will not put up with the tumbles that the mercury sometimes takes here in Ontario. At New York and southward, however, it grows in all its beauty.

For this climate *H. paniculata grandiflora* is decidedly our favorite; given a well enriched spot, and proper pruning, it will satisfy the most exacting.

WEBSTER BROS.

PRUNING STREET TREES.

A Constant Reader, in last number of HORTICULTURIST asks when to prune street trees, and as this is a subject I feel very much interest in, and I have been experimenting in that line for 25 or more years, I have found to my cost that pruning in winter when the wood is frozen is a splendid way to destroy a good orchard. A neighbor of mine whose orchard had been neglected for several years, got a man who professes to be an expert in that line to prune his orchard in January, and he did *prune*, cutting large as well as small limbs and branches, and the proprietor has never had even a fair crop of fruit since. Besides, about 40 out of 100 trees died outright inside of three years. I find invariably that all deciduous trees do better when pruned in spring, but trees like the Maple and Birch, Basswood, Walnut and such varieties as flow sap rapidly, should be pruned about the time the leaf is coming out, after the sap is up. Plums and Cherries should be pruned about the first of April; Apples and Pears a month later, and the wounds will heal sooner than if pruned at any other time of the year. Besides, if apples are pruned before growth starts, a large number of shoots start out where the branch was removed. When I speak of pruning I mean the removing of branches that are one inch and over in diameter. Every Maple or other street tree should be regularly pruned till a trunk is obtained from 10 to 12 feet from the ground, when the top may be allowed to form. When a row of such kept trees appear on a street they are a "thing of beauty and a joy forever" to every passer by, who enjoys the beauty of Nature and Art combined. My experience is that nearly all fruit trees are allowed to form branches too near the ground, and the only advantage seems to be that the fruit can be gathered easier; but I question if that is a sufficient reason to allow trees to be headed low thereby preventing any cultivation of the soil, which to my mind is of far more importance than the trouble of going up a step-ladder to gather the fruit. My advice to growers of ornamental or other trees is to prune regularly every season, and you will never have a large limb to remove; and by pruning after the growth starts, no injury from loss of sap will appear.

R. L. HUGGARD.

Whitby.

Our Affiliated Societies.

Brampton Horticultural Society. —A meeting of the members and others who are partial to flowers and fruit growing was called to receive the Spring distribution, which consisted as follows—any one of the following :—Dempsey Pear, Lily, Japanese Lilac or Courath Raspberry, given by the Fruit Growers Association, besides 1 oz. Sweet Peas, 1 Hardy Hydrangea, 1 Clematis paniculata alba, and four Tuberoses. The members turned out in fair numbers and Dr. C. Y. Moore, the President, presided and opened the meeting with a few appropriate remarks, introducing Mr. H. Dale, the great Rose grower of the Dominion, as the first speaker, who made some very interesting remarks upon the "Hydrangea," in a most practical manner. Mr. Ed. Dale followed, on the culture of the "Tuberose," followed by Mr. Adam Morton, on the Sweet Pea—a very instructive address, which was well appreciated. Dr. Heggie continued, with some remarks on the Clematis. Many questions were put to the various speakers and discussed, showing the interest taken by those present in the different divisions of Horti culture. After the meeting the plants were distributed by Mr. Henry Roberts, the Secretary.

Niagara Falls South Horticultural Society. — The Horticultural Society held its regular monthly meeting on May 17th, in Mrs. Land's hall. A very interesting discussion took place upon pruning and spraying fruit trees, and if those present will adopt the methods advised, there is little doubt but that the quality of our fruit this coming harvest will be greatly improved. With improved quality, the grower may reasonably look for greater returns, and a more ready market.

The flower kingdom received its share of attention. Mr. R. Cameron gave some very valuable instruction for the Spring and Fall care of flowering shrubs, chiefly Forsythia and Hydrangea. It was mentioned, that as the Rose thrip had made a very early appearance this year it bids fair to be a dangerous menace to successful rose culture, therefore the members were advised to look well to the method of spraying. Too much care cannot be given to the rose, under the existing circumstances. To get good results in flower, much depends upon the clean, healthy nature of the stock. The following was moved by the Rev. Canon Bull and adopted,—Whereas all British subjects are rejoicing in the favors of the Almighty in permitting our beloved Queen, to *outreign* any former sovereign in peace and justice, and whereas this board does desire to visibly express its sense of thanks and loyalty, be it resolved that on June 20th, we do wear upon our breast the rose, Natures own gift to our beloved land, and that this board does try to promote the same idea among our citizens. Messrs. Pyper, Dobbin, Cameron, Morden and Lyon were appointed a committee to promote the idea and have a sufficient stock of roses on hand to meet the requirements.

Yours truly,

Wm. L. Lyon.

Grimsby.—The Society here held a most successful spring meeting in the Town Hall, on the evening of May 14th. Through the energetic efforts of the President, Mrs. E. J. Palmer, the Secretary and the Lady Directors, a fine exhibit of palms, coleuses, begonias,

fuchsias, roses, geraniums, cacti, hydrangeas etc., besides numerous cut flowers was shown, both from amateurs and professional gardeners. The largest exhibit was made by Mr. A. E. Cole, a young gardener at Grimsby, who is always on the market with fine stock.

dent. A Grimsby orchestra gave some delightful music; a violin solo was rendered by Miss Taylor, and a violin duet by Misses Taylor and Brodie. At the the close Secretary called out the names of the members, who came forward in turn each to receive in a basket five

Fig. 1139.—Mr. A. E. Cole's Flower Exhibit.

We show a glimpse of Mr. Cole's exhibit which occupied the whole of one side of the hall Fig. 1139. Mr. M. Pettit, of Winona, an ex-president of our association, was chairman, and a paper on Chrysanthemums was read by the presi-

choice chrysanthemums, each plant grown and transplanted into a five inch pot. Three hundred and fifty potted plants were thus distributed, and with them we hope for a fine chrysanthemum show next November.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

PROF. PANTON of the O. A. C. Guelph, delivered a lecture before the Paris Horticultural Society on the 19th of May, on "The Horticulturist's Foes" illustrated by a stereopticon.

ERRATA.—In Mr. Beall's article on heating small Conservatories, in paragraph (2) p. 178 read "below the level of the benches," instead of "above," etc.

CORRECTION.—The replies to Mr. Gott's questions regarding the advantages of affiliated Horticultural Societies were written by Mr. Thos. Beall, our Director at Lindsay, whose services have been so valuable in the formation of these Societies.

COLD STORAGE.—It appears probable that the export shipments of tender fruits and dairy products are likely to go forward on a large scale even this season. In order to complete the transportation facilities from all ports of the province, the Department of Agriculture has proposed to the Grand Trunk Railway to run cold storage trains weekly to Montreal as follows:—From Wiarton, via Stratford and Toronto; Sarnia, via London and Hamilton; Meaford, via Allandale and Toronto; Orillia, via Peterboro' and Belleville; Chaudiere Junction, Coaticook, Massena Springs. On each alternate week the first mentioned train will leave Goderich instead of Wiarton. The proposal is now under the consideration of Mr. Loud, the general freight agent, and a decision will be reached in a few days. Weekly storage car service will be provided also on the C. P. R. as follows:—Windsor, via Toronto; Owen Sound, Teeswater, Pembroke, via Ottawa; Labelle to Montreal; Quebec to Montreal; Scotstown to Montreal and other points on the C.P.R., in Quebec and Montreal; Edmunston, N.B., to St. John, on the I. C. R.; Rimouski to Quebec; Moncton to St. John; Moncton to Halifax; Yarmouth

to Halifax; Chicoutimi to Quebec by rail and also by steamer. This completes a network of rails over which cold storage trains will be run throughout the season.

It is evident, therefore, that opportu nity will be given for fruit shipments from all quarters, in addition to the regular weekly carload which the Department will forward from Grimsby. This latter will be necessary in order to thoroughly test the English market for our tender fruits, and the results will be fully made known as a guide to fruit growers in all parts of Canada.

Special Packages are being prepared at Grimsby for use in exporting tender fruits in cold storage cars to Great Britain. The basis of the package is the apple box, which is two cubic feet, outside measurement. Inside this trays are fitted, to hold one layer each of choice peaches, or tomatoes.

Aeration System. — We have received a pamphlet and letter from Mr. R. M. Pancoast, of Camden, N.J., regarding a new system which he has invented of saving fruit from decay in shipment by a constant and free circulation of pure air. It has already been demonstrated that this process does restrain waste in many fruits, and it reminds us of the Perkins system of which we have read so much.

The Russian Baldwin is commended by Dr. Hoskins of Newport, Vt., as very promising on account of hardiness, perfection of fruit, and wide spread usefulness for both growers and consumers. He is himself planting 2000 trees of this variety. It was the Doctor who introduced the Yellow Transparent and Scott's Winter to general notice.

Instructions in Spraying, is the title of bulletin 105 from the O. A. C. Guelph, by Prof. J. H. Panton. This is free on application to the Department of Agriculture, Toronto. It gives recipes for the various mixtures, and for the treatment of the various insects and fungi affecting fruits.

Fruit Growers may think that undue prominence is being given floriculture by this Journal, indeed several complaints of this kind have been received. We may explain that our new Horticultural Societies have requested greater attention to floriculture and we have endeavored to meet their wishes. On the other hand our fruit growers may count upon as much matter as ever, bearing on that business. We expect to continue enlarging this journal until we have in it abundance of matter to please both classes of patrons.

The Prospects are bright so far for the fruit grower in 1897, but he need not count too soon. The peaches have blossomed abundantly in the Niagara peninsula, but some report that the leaves are affected with curl leaf and that the fruit is dropping fast, pears show well even Bartletts which bore abundantly last year, cherries are full and setting unusually well. But what surprises us most is the promise of a fairly good apple crop, notwithstanding the over abundance of last year. The Baldwins will be very light, and many orchards almost bare of fruit. Greenings will be much better, while Cranberry Pippins, Spys and Roxbury Russetts promise an abundant crop.

In about a month, when the fruit has begun to grow, and nature's thinning out has taken place, together with a possible touch of Jack Frost's fingers, we can report more positively. In the meantime we ask our readers in various sections to write us brief notes on the fruit crop about the middle of June, so as to be in time for July number.

Notes From Our Fruit Experiment Stations.

Notes on Peach Trees.

During the spring and summer of 1896 the weather was very favorable to the growth of the Peach trees. They made a very strong growth from three to five feet on most of the trees not over four years planted. The wood and fruit buds ripened up perfectly in the autumn which was quite dry. When the first frost came I never saw buds in better condition. In December the weather was quite warm for a number of days which started the fruit buds to develop and swell to nearly double their normal size, this of course developed portions of the fruit bud that should remain dormant until spring. The cold of January, 12° below zero finished the work, I have not seen one fruit bud except what has been killed on the peach. Plums and cherries are all right.

W. W. Hilborn.

Leamington, Ont.

Gooseberries in Simcoe County.

Sir,—I offer for publication a few notes upon my work as gooseberry experimenter.

Last fall my bushes were dug among last thing in the fall. As much first class stable manure was dug in as possible, so as to be in shape for mulching in the spring. This spring we mulched largely with strawy manure and pea straw that had been tramped by sheep all winter in pens.

The winter finished many of the English varieties received last spring, many of which notwithstanding all the care taken of them last summer, only barely showed signs of life in the fall. Ironmonger, Red Champaigne, London, Railway and Green Chisil are exceptions. These all lived and did well.

All the American seedlings, Dominion, Success and Oregon Jumbo came out splendidly this spring Some rows mulched last fall look fine, as the pea straw is up level and smooth as a board with not a weed showing through. Mulching a large piece might be impracticable that is to cover all the ground as it certainly gives a lot of work, and requires a lot of material, but about bushes would be sufficient for all practical purposes.

My strawberries have come through the winter in fine condition without any winter covering and they were in a side hill facing the north and were bare several times during the winter. This is the fifth time in succession that I have had the same experience without winter protection.

The older gooseberry bushes could hardly look better than they do, and if late spring frost don't prevent, I shall certainly have something worth looking at.

Stanley Spillett,

Nantyr, Ont.

Spring Notes from St. Lawrence Fruit Experiment Station.

On the whole the weather during the past winter and spring has been favorable to fruit growers. Once during the winter the thermometer dropped to 28° below which was not unusual, as some winters it goes as low as 30 or 35° below. The spring has been cool and wet up to May 4th, but no late frosts as yet to injure buds. Since May 4th, the weather has been warm and bright forcing plant growth rather rapidly. The blossom will be from 3 to 6 days later than last year which gives us that much in favor of missing a late frost.

Of the varieties planted at the station in 1896 as mentioned in the Annual report for that year I had nothing injured by winter killing, and in Plums I have the Chas. Downing, Whitaker, Hammer and Weaver that will bloom this year. Pears do not show any injury as yet. In my commercial orchard, which is composed mostly of Fameuse apple I have prospects of a good blossom, even though it was heavily loaded last year.

Fungi have been making rapid growth this year during the wet weather, and orchards left unsprayed will run a great risk of having the fruit badly affected. Green aphis is also present in large numbers, and tent catapillers are numerous and are now feeding on the opening leaves.

Strawberries wintered very well, a few reports of heaving on clay ground, but where well covered they came out in perfect condition. No bloom yet even on early varieties, but wild berries are in bloom to-day.

Next month after danger of late frosts are over, I hope to be able to give a good account of spring growth and prospects.

Harold Jones.

Maitland, Ont.

Plums and Pears at Whitby.

I think the Abundance and Burbank are as hardy as any plums I have tested. I have grown them for some years, and they winter as well as any other variety. Duane's Purple is rather tender, and General Hand a very shy bearer. Pond's Seedling does splendidly, and although a neighbor complains that it is not productive, I have had to support branches of my trees to prevent their breaking from the load of fruit. My choice for an early plum is McLaughlin. Two years ago we picked thirteen 12 qt. baskets from one tree, and sold them at $1.25 a basket. I think a good windbreak a great help to a plum orchard, as well as adding to the beauty of the surroundings. How cheerless the farm homestead is without an evergreen or other tree!

I am glad you are giving more space in the journal to floriculture, so as to encourage your readers to study the beautiful in nature. I have a good many varieties of pears. I find the Sheldon a profitable variety of fine quality, and not fully appreciated as yet by the public. I have made more money out of the Keiffer than any other variety, simply because of its productiveness. The tree is an excellent grower and very hardy. The Flemish Beauty succeeds since it has been sprayed persistently with Bordeaux.

R. L. HUGGARD.

Whitby, Ont.

From Simcoe Fruit Station.

The past winter has been the mildest for years, the temperature scarcely reaching 20 below zero, and that only once. All fruits have come through in fine shape, except the Japan plums, Abundance and Shensie, which have killed back at the tips of the new wood, and I doubt if they will stand our climate. The hardy Russian cherries will be an acquisition for this section, for the growing of cherries has been almost entirely neglected here. The hardy varieties seem less susceptible to knot than the old varieties, and bear very early. The oldest I have are only three years planted, and yet some of them bore several samples last year, and several are full of bloom this year. I note that the fruit is handsome in appearance, and hangs on the trees until dead ripe. I believe that the Bordeaux mixture is a good preventive of the black knot, and indeed no fruit seems to benefit so much from this mixture as the cherry.

The Mann apple has a bad fault, namely, splitting of the bark. The prospects are favorable for a good crop of fruit of every kind in this section. Apple trees are full of blossom buds, and present indications are for an abundant crop. The blackberries I am testing are doing well here, except the Kittatinny. We once thought we could grow no other variety except the Snyder, but now we hope for better things, and may after a time be able to advise the planting of the finer varieties in this section with assurance of success. The Columbian raspberry is not entirely hardy, as it has been killed back in the tips. However, it was planted in rich soil and made a rampant growth which may account for that to a certain extent. It is a wonderful bearer. Smith's Giant black cap is alive to the ends of the tips, and seems to be hardy.

G. C. CASTON.

Craighurst, Ont.

Question Drawer.

Clivias and Cypripediums.

945. SIR,—What are Clivias and what are Cypripediums? I see them recommended for winter bloom.

A SUBSCRIBER, *Seaforth.*

Clivias belong to the Amaryllis family. They are evergreen bulbs for the greenhouse, and need plenty of moisture and high temperature when growing.

Cypripedium is a variety of Orchid, commonly known as Lady's Slipper. This is a good variety of Orchid for the beginner, because inexpensive and easily cultivated. It flowers freely, and remains blown a long time.

Clairgeau and Lawrence Pears.

946. SIR,—I have half an acre of ground which I intend setting with Clairgeau pears. I have one tree of this variety that bears profusely every year, and I find it an excellent market pear, being late.

Is the Lawrence a late pear, and suitable for our northern climate?

MRS. M. F. ROSS, *Owen Sound.*

The Clairgeau seems to succeed remarkably well on the southern shore of the Georgian Bay.

The Lawrence is a late pear, which yellows after being gathered, and ripens for dessert use in December. The quality is very excellent. We have as yet no reports concerning its success in your latitude

Fertilizers for Small Fruits.

947. SIR,—I have given my small fruit bushes and vines a dressing this winter with ashes from the Tanneries here, made from tan bark, soft wood and coal, also mulched them with hair from the Tannery. Would you recommend a dressing this spring with Phosphoric Acid and Nitrate of Soda and what quantities of each per acre, when and how to apply it or what would you recommend.

I can get large quantities of fleshings and hair mixed with lime. Please say how it is best to use it on the land to get best results. Any information will be thankfully received.

J. M., *Acton, Ont.*

Reply by Prof. H. L. Hutt, O. A. C., Guelph.

Coal ashes are of little or no value as a fertilizer. The elements of greatest value in wood ashes are potash and phosphoric acid, the percentage of which varies greatly according to the kind of wood from which the ash is taken. Analyses made in the Chemical Department here last year, of the ash taken from different trees, showed that cedar ash contained only 3.30% of potash and .98% phosporic acid, while elm ash contained 35.37% of potash and .45% of phosphoric acid. If you can get plenty of good wood ashes you will have no necessity for buying phosphoric acid or nitrate of soda. The principal element of fertility in the hair and fleshings would be nitrogen, which, however, would be largely liberated and lost if mixed with much lime. The best way to use such material would be to compost it with a large amount of earthy matter, which would retain the ammonia as liberated by the action of the lime. Apply the compost as a top dressing for some field or garden crop.

To Destroy Ants.

948. SIR,—What is the best method of preventing young ants going up young plum trees, and what will drive them entirely out of the ground? I find them very destructive to the young trees. I have tried using a rag about the trees, soaking it with coal tar, but that soon dries up.

THOS. NORRIS, *Paris.*

Reply by Dr. Jas Fletcher, of the Central Experimental Farm, Ottawa, Ont.

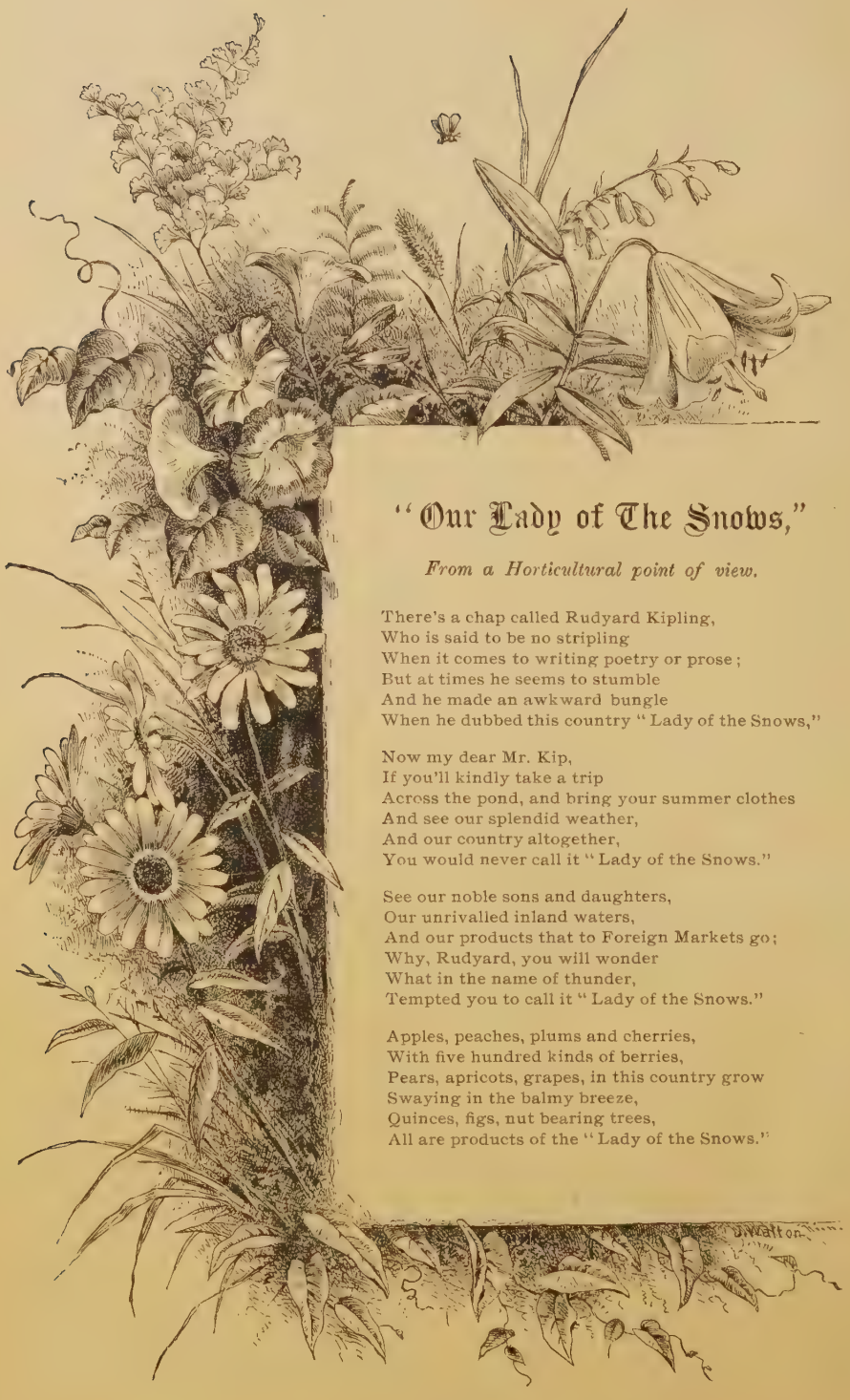
I shall be interested to hear from Mr. Norris, how he thinks that young ants injure his young plum trees, I have never in my experience seen any injury to trees by ants, and I am much more inclined to think that their presence on Mr. Norris's plum trees merely indicates that his trees are infested by plant lice or scale insects. It is just possible that ants may sometimes do harm by making their nests under the roots of trees, but I am not sure even of this, although I receive very many reports from fruit growers to this effect. The relations between ants and the aphidæ or plant lice are well known and have been most delightfully described by Sir John Lubbock in his book "Ants, Bees and Wasps." The plant lice are actually kept on trees and bushes by ants, so that they may feed on the honey-dew which is secreted by the plant lice, in fact they serve them as cows and have been called "Ants' cows." Some species of ants collect root-feeding plant lice and carry them into their nests, and not only do they protect them in this way, but they actually collect their eggs in the autumn and take care of them carefully in their nests during the winter. Many other insects are also domesticated by ants, and Sir John Lubbock says "It is not going too far to say that ants have domesticated more animals than we have." I would advise Mr. Norris at once to examine his trees and see if they are not infested with scale insects, or whether he does not find upon the twigs the small black eggs of plant lice. If he does find either of these the trees should be at once spayed with kerosene emulsion.

A Scale Insect of the Maple Tree.

949. SIR,—I enclose you a twig of a Maple tree covered with a scale insect, for identification. W.

Reply by Dr. Jas. Fletcher, of the Central Experimental Farm, Ottawa, Ont.

Dr. Howard first described this insect as Lecanium persicæ, but he has since decided that it is a new species, Lecanium patelliforme. It can be destroyed by spraying the trees, once before the buds burst, with kerosene emulsion.



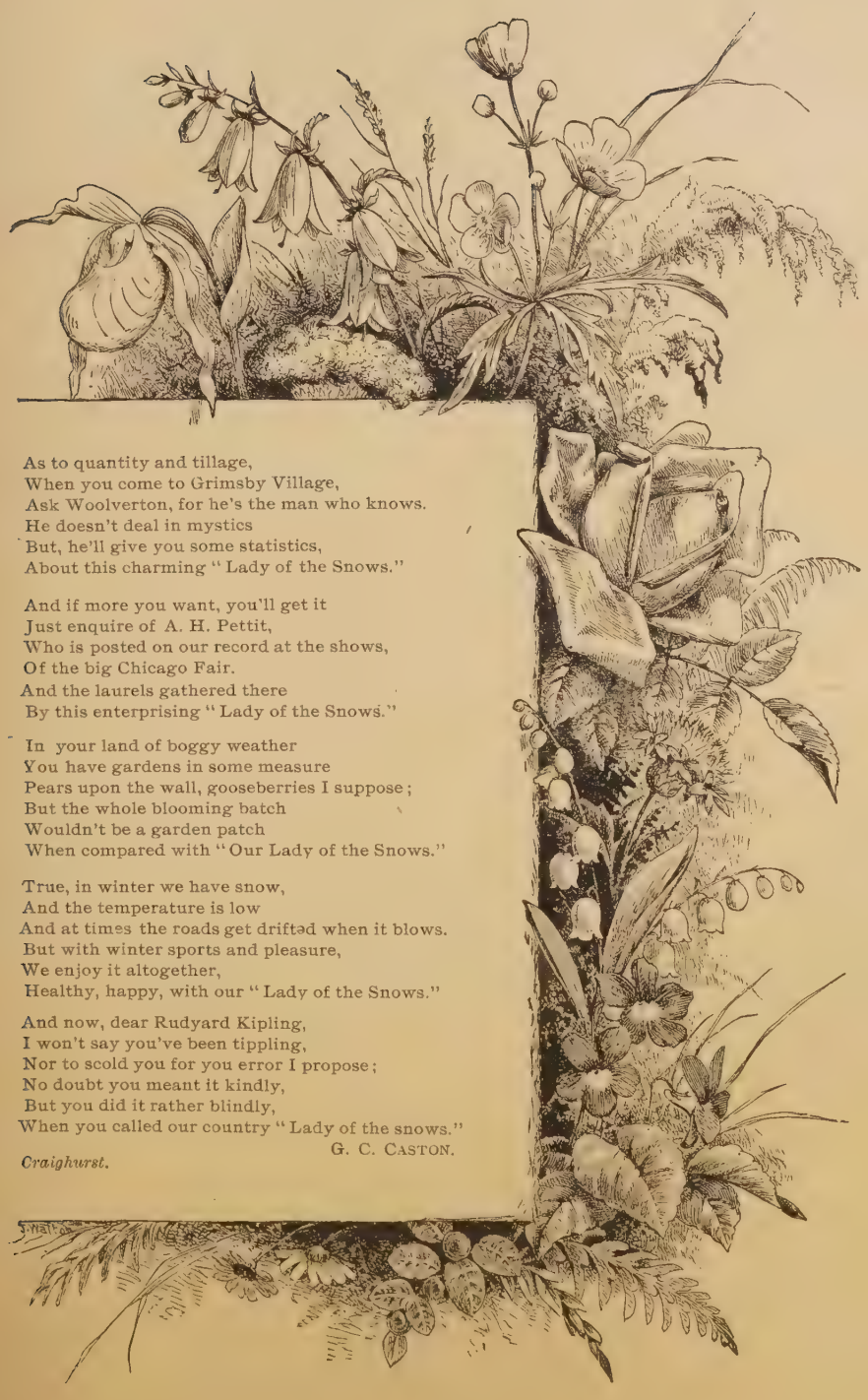
"Our Lady of The Snows,"

From a Horticultural point of view.

There's a chap called Rudyard Kipling,
Who is said to be no stripling
When it comes to writing poetry or prose;
But at times he seems to stumble
And he made an awkward bungle
When he dubbed this country "Lady of the Snows,"

Now my dear Mr. Kip,
If you'll kindly take a trip
Across the pond, and bring your summer clothes
And see our splendid weather,
And our country altogether,
You would never call it "Lady of the Snows."

See our noble sons and daughters,
Our unrivalled inland waters,
And our products that to Foreign Markets go;
Why, Rudyard, you will wonder
What in the name of thunder,
Tempted you to call it "Lady of the Snows."

Apples, peaches, plums and cherries,
With five hundred kinds of berries,
Pears, apricots, grapes, in this country grow
Swaying in the balmy breeze,
Quinces, figs, nut bearing trees,
All are products of the "Lady of the Snows."

As to quantity and tillage,
When you come to Grimsby Village,
Ask Woolverton, for he's the man who knows.
He doesn't deal in mystics
But, he'll give you some statistics,
About this charming "Lady of the Snows."

And if more you want, you'll get it
Just enquire of A. H. Pettit,
Who is posted on our record at the shows,
Of the big Chicago Fair.
And the laurels gathered there
By this enterprising "Lady of the Snows."

In your land of boggy weather
You have gardens in some measure
Pears upon the wall, gooseberries I suppose;
But the whole blooming batch
Wouldn't be a garden patch
When compared with "Our Lady of the Snows."

True, in winter we have snow,
And the temperature is low
And at times the roads get drifted when it blows.
But with winter sports and pleasure,
We enjoy it altogether,
Healthy, happy, with our "Lady of the Snows."

And now, dear Rudyard Kipling,
I won't say you've been tippling,
Nor to scold you for you error I propose;
No doubt you meant it kindly,
But you did it rather blindly,
When you called our country "Lady of the snows."

G. C. CASTON.

Craighurst.

Fruit Lists Wanted.

950. SIR,—Will you kindly explain remark in March number, page 87? It certainly is not encouraging to fruit growers or salesmen of fruit trees and stock generally, if it can be truthfully said that the Baldwin apple tree, after being grown thirty years, and is in a thrifty condition, deserves no better fate than being dug out. Allow me to suggest, that part of the Government grant be expended in preparing a list of fruit, large and small, *that is reliable.* Not one list for all Canada, but North, South, East, West, Central, and any other geographical division necessary.

C. H. ROBERTS, *Paris.*

The Ontario Experiment stations hope to accomplish this work in time. Fruits are being tested at all points, and careful records made, so that we hope soon to give just the information asked for.

The Baldwin is one of our most productive commercial apples, but for ten or twelve years past, it has for some unexplained reason, been unproductive, and last season it seemed to be recovering its original character.

Kerosene Emulsion.

Mr. Wm Scott, in Gardening, gives the following directions for making Kerosene Emulsion for use on house plants.

Take one-half pint of kerosene and stir in one pint of new milk. It must be stirred and mixed continuously and thoroughly for half an hour and if you will do that you will have an emulsion. When using add a quarter of a pint of this to two gallons of water, and it is well when using this to spray to keep the water well stirred. For a small collection of palms it is best, safest and most thorough, to saturate a sponge with the mixture when diluted, and wipe off the scale. It does not take long and is far more effectual than spraying.

Grafting Ampelopsis.

951. SIR,—Can Ampelopsis Veitchii or a Roylei be budded or grafted into A Quinquefolia successfully? I have a number of the latter, strong vigorous vines, natives of this locality.

Whitby. W. ADAMS.

Reply by Mr. Frank Brunton, Maplehurst, Grimsby.

You can graft Ampelopsis Veitchii and Roylei on Quinquefolia if you have as vigorous scions as the stock. But A Veitchii does better on its own roots and strikes freely from cuttings, inserted in nice sandy soil, in a shady position; the same remarks apply to Roylei.

Treatment of Cyclamen.

952. SIR,—Would you kindly tell me in the HORTICULTURIST the proper treatment of Cyclamen after blooming?

Reply by Mr. Frank Brunton, Maplehurst, Grimsby.

Allow the plant (corm) to rest awhile, by gradually drying off, and then repot in a few weeks, in a compost of soil, consisting of two-thirds loam, one-third leaf mould and decayed manure and the remainder course sand, silver sand if possible. Place in a cold frame so as to let the growth be strong and continuous. Be sure and protect from frost or sudden cold changes.

GRAFTING WAX.

A good grafting wax is one that will not become too soft in summer, so as to melt and run down the stock, or so hard in winter as to crack and split off. A very reliable grafting wax is made by melting together: Resin, four (4) parts by weight; beeswax, two (2) parts; tallow, one (1) part. When well melted pour into a pail of cold water, grease the hands slightly and pull the wax until it is about the color of pulled molasses candy.

Make into balls and store for use. This wax should be warmed when applied. If it is too hard more tallow and less resin may be used. Some propagators use linseed oil instead of tallow.—Amateur Fruit Growing.

Open Letters.

Grape Growing at Goderich.

SIR,—Having seen Mr. Cameron's partial recommendation of Rogers' No. 3, I will confirm what he says about its setting poorly at times. It set so poorly with me that I cannot recommend planting it, although it is a good grape, about as early as Moyer. I have thirty-five varieties, and my exhibit at the Great Western Exhibition at Goderich last fall helped to make the grape exhibit the best in the Province, *i.e.*, of out-door grapes. I had single bunches of Rogers' No. 4 and Eaton that weighed 2 lbs,, and other varieties which weighed nearly as much. I will name three of the best varieties of grapes, according to my experience: Rogers' No. 4 (black), Vergennes (red) and Moore's Diamond (white). These are all sure croppers, of excellent quality. Rogers' No. 4 is as prolific as Concord, it has a larger and better flavored berry, and keeps longer. The vine is hardy and vigorous. The Vergennes is as hardy as Rogers' No. 4, very vigorous and produces regular crops of splendid fruit, which keeps until spring in perfect condition, packed in sawdust. The Moore's Diamond is a heavy cropper and is a most beautiful white grape It is a little earlier than Concord, as strong in its habit of growth and as hardy. I have had no mildew, not even on my Brighton, for several years since I commenced washing my vines in the spring with a solution of sulphate of iron before the growth starts. giving them also a perfect cultivation and proper pruning.

W. WARNOCK, *Goderich.*

Heating Small Conservatories.

SIR,—I notice in the May issue of the HORTICULTURIST, page 178, a rather captious criticism upon my answer to a question regarding the heating of a conservatory, in the March number.

I state that a certain amount of pipe will answer, if the temperature does not fall below twenty-five degrees. The critic considers the answer unsatisfactory, as the temperature often falls fifty degrees below. While I did not state it in as many words, I certainly intended to fix the limit at twenty-five degrees *below* zero, and should have gone to the trouble to have so stated, had I supposed that your readers would not understand it that way. There are none of our northern States where the temperature does not occasionally reach zero, and here, in central Michigan, twenty-five *below* zero is not uncommon; so that I should hardly think of placing twenty-five *above* zero as a minimum temperature for a point in Canada.

So far as the amount of pipe recommended is concerned, I find no criticism of that, and after further consideration, I see no reason for changing the figures given.

Criticism No. 2, related to the fire surface recommended, which was four runs of two-inch pipe the length of the fire-pot. Mr. Critic claims that one would be ample. It is customary in estimating the fire surface required in a heater, to take one-eighth of the radiating surface to be supplied, and I followed that rule. While a smaller amount might answer, in the present case where, in a hot-air furnace the economy of fuel consumption need not be considered in determining the size of the heating coil for the conservatory, I should by all means prefer to have four pipes, rather than one in the coil, if on a winter morning I were to find the fire nearly out and the temperature twenty-five degrees below zero outside; and as this is likely to happen in the case under consideration, I should use four pipes rather than a smaller number.

The third criticism was also uncalled for, as I do not differ from Mr. Captious Critic as to the reason for the circulation of the water, and always like to carry the pipes well above the heater. I could have answered the question by saying "No," but it seemed to me that Mr. German was afraid that he would have trouble with the circulation, owing to the heater being in the basement of the dwelling and a number of feet from the conservatory; and I tried to assure him that he need have no fear, "as the entire length of the circulation will not be more than fifty or sixty feet." I beg to differ from Mr C C., as I think "the working of pipes *does* depend on their length," as can readily be ascertained by comparing the circulation of a long run of small pipe with a short run, when both are but slightly above the level of the heater. While Mr. German did not tell the height of the radiating pipes above the heater, I inferred that it must be at least six to eight feet from the lowest part of the returns to the highest point in the circulation, as the heater was in the cellar of the residence, while the conservatory was built against it.

I noticed several questionable statements in the interesting dissertation of your correspondent, but will only comment on one of them, which is so utterly opposed to the best practice of the present time, that it may lead to serious mistakes. In paragraph (8) he recommends 20 gallons of water for heating 1000 cubic feet (which would be all right for a certain size of pipe and for a house of a certain shape), instead of recommending a certain ratio between the radiating surface of the coils and the exposed glass surface, as is the usual method. The error can be seen when we consider that a four-inch pipe offers only about four times as much heating surface as a one-inch pipe, while it contains sixteen times as much water. If the rule of Mr. C. C. is correct, a linear foot of four-inch pipe

is as effective as sixteen feet of one-inch pipe, which can at once be seen to be false In a similar manner, the error of using the cubic contents only in determining the radiation for a conservatory, can be shown.

L. R. TAFT.

Agricultural College, Michigan,
May 12th, 1897.

Exhibition of Fruit and Vegetables without Name.

SIR,—I forwarded a communication to Mr. Heyes, Secretary of the Ottawa Horticultural Society, last summer, as to the advisability of each prize winner writing a paper giving the history of the exhibit, from seed or plant, to the time of exhibit.

Name of article.
Seed, where grown.
Plant, " "
Fruit, " "

Reason for asking the questions:—Mr. A. or B., receiving a first or second prize, gives no information to the Society generally; for instance: at the exhibit for Cabbage Lettuce, one will exhibit a Golden Queen another, Hanson, etc. Those varieties are not named by the exhibitor. The same on the transplanted Onion; one will exhibit a Prizetaker, another, Red Globe, some a Giant Rocca. On self-blanching Celery, some will have a white plume, some a pink, some a Golden. self-blanching. The same occurs on Cauliflower; one will show Sutton's first of all, another Henderson's Snowball, another Erfurt, and so on, through the whole piece the varieties are not named. I hold that if it is necessary to name fruits and flowers, it is also necessary to name the different varieties of vegetables and to give the points of merit on each exhibit, as there is considerable dissatisfaction with the judging. There are so many varieties in one exhibit, that the judges have no fair chance of giving a fair decision. I forward this communication for publication in the CANADIAN HORTICULTURIST, if you see fit to do so, for the purpose of getting the views of kindred societies. For instance, there were two first prizes given for White Plume self-blanching Celery, in '95, one as an early celery in the summer and one as a late white or winter celery in the fall. A leading member of the Society failed to see any difference between the White Plume self-blanching celery and the Winter White celery. I claim that these are two distinct classes of celery and ought not to be exhibited together.

WM. SPENDLOW,
Billingsbridge, Ont.

Fruit Growers and Shipping Companies.

A meeting of the Lincoln and Welland Fruit Growers was held in St. Catharines, on Saturday, 27th March. Iced cars were commended for carrying fruits for the Montreal market, for though longer than express, they would reach Montreal in quite as good condition, at less expense. The growers asked for special R. R rates of 35c. per cwt. for Montreal, in broken lots. and 25c. in car lots in iced cars; and by express, 50c. to Montreal. The answer of the Companies was reserved.

Notes from Africa.

SIR,—Please send me sample copies of THE CANADIAN HORTICULTURIST. I want to secure 36 members in South Africa, and feel sure I can do so with the influence I have here among my old friends. The journal is much improved, and I consider it very cheap with the Report. I like it very much, and am willing to act as general agent for this part of South Africa, a wide district. I shall always take great interest in the journal, and in Canadians who are so very loyal, and such warm-hearted people.

Japan plums are doing remarkably well here and making more wood than any other kind. We have to dispense with all kinds of apple trees here, except the Northern Spy, on account of the blight.

T. RHODES,
Mokstad, Griguland East, South Africa.

Fruit Prospects.

SIR,—Thinking you would like to hear how the prospects are for fruit for this year in this district. Pears of all kinds are very heavy with blossom, also cherries, and plums. I had a D. Purple plum that yielded over six bushels last year, now it is loaded with bloom, and apple contrary to expectation, notwithstanding the large crop last year are making a fine show, especially the R. I. Greenings that bore heavy the last season; the Rib. Pippin not much last year, are thick with bloom; the N. Spys I never saw such a quantity of blossom; Kings that had a load last year are not making much show while others are thick, several other sorts are very good if frost keeps away there will likely be a good crop. WALTER HICK, *Goderich.*

Gooseberry Mildew.

SIR,—Referring to cures for gooseberry mildew in a recent HORTICULTURIST, I would just like to say that I have been growing gooseberries for a good many years, including all the leading English and American varieties, with excellent crops every year, and have yet to see a trace of mildew on my bushes, of which I have probably 50, all told. I think this is due to several causes—a warm, dry, sandy soil, plenty of wood ashes, say a patent pail to each bush every spring, spread as far as the area of the branches, and forked in, and constantly pruning the bushes to tree shape, where the habit of the variety will permit it, allowing a free circulation of air around and through the foliage. Never a chemical, except once in a while nitrate of soda, and Paris green or hellebore for the worms.

C. W. YOUNG, *Cornwall.*

KENTISH FILLBASKET.

THE
CANADIAN HORTICULTURIST.

VOL. XX 1897 No. 7.

KENTISH FILLBASKET.

ONE of the most showy apples that was shown at the Industrial Fair, Toronto, last year, was the Kentish Fillbasket. It is an old English variety of great beauty of appearance, and enormous size; but of ordinary quality. In England it often measures 3½ inches in diameter, but reaches a larger size in Ontario; the sample from which this photograph was taken measuring four inches in diameter. We do not know of any other apple of its season to compare with it in appearance, unless it be the German Bietigheimer, some samples of which closely resemble the Fillbasket. Its name certainly is well applied, for very few would fill a basket.

With all its beauty, however, it does not seem to be very profitable, and is not widely grown in Ontario. This is probably due (1) to its season of ripening, (2) its unproductiveness, and (3) the tenderness of the tree. It succeeds best, according to our reports in the Counties of Huron, Bruce and Gray, where the vicinity of Lake Huron ameliorates the climate, but in Victoria and Simcoe Counties it is not hardy. In the Niagara peninsula it is very little grown.

Mr. A McD. Allan, of Goderich, writes:—I don't see profit in growing it unless it be near a good large city market, where it could be used for cooking purposes. It might, and doubtless would sell well in Britain, if we had a decent sort of steamboat accommodation to carry. It is absolutely worthless in my opinion for dessert, it is only a cooker. A good strong growing tree and good bearer. The tree perfectly hardy here and in other places I have known it.

Origin, England; tree, vigorous, fairly productive, semi-hardy.

Fruit, very large, 3x4 inches, globular, slightly ribbed; color, smooth, shiny, light-green to pale yellow, sometimes almost white, and on sunny side splashed and striped with bright red; stem, stout, short, ¼ inch, set in a large cavity; calyx closed set in a large plaited basin.

Flesh, fine-grained, tender and juicy; flavor, mild sub acid.

Season, October to December.

Quality, poor for dessert, good for cooking, good for home market, and poor for foreign market.

OUR TENDER FRUITS FOR ENGLAND.

FIG. 1140.—HON. SIDNEY FISHER, M.P.
Minister of Agriculture for the Dom. of Canada.

WE take pleasure in giving prominence in our pages to the Hon. Sidney Fisher, because he has made himself interested in the fruit export trade of Canada. Our report for 1896 gives a verbatim report of his addresses at our Kingston meeting last December, in which he promised to do all in his power to encourage an export trade in our tender fruits, by means of a chain of cold storage service right from the grower in Canada to the consumer in Britain.

This promise is being faithfully carried out, and already the refrigerator cars are beginning to give regular service on the great railway lines. At Grimsby a cold storage warehouse has been erected by the Department of Agriculture, to hold about a carload and a half, as shown in accompanying engraving. It is a small building, and nearly two-thirds of the interior is filled with ice, but large enough to make a thorough test, and that is the object in view.

The ice room is on the ground floor in the rear, and is stored with about seventy five tons of ice, and there are openings in the bottom of the partition to let the currents of cold air into the store room, and flues at the ceiling for carrying the heated air back to the rear of the ice room.

It is the intention to send forward a car-load a week of such fruit as summer apples, tomatoes, pears, peaches and grapes, and the results will be made public as quickly as possible, in order that the whole country may share in the advantage.

Special packages will be used for this trade, and the committee at Grimsby has adopted a convenient form, designed by Mr. John H. Grout, which may be generally adopted. It consists of a case containing two cubic feet outside measure, in which trays are fitted to suit the various fruits. Fig. 1142 shows case and two trays differing in depth,

FIG. 1141.—EXPERIMENTAL COLD STORAGE FOR FRUIT, AT GRIMSBY, ONT.

an assortment of which can be ordered as required. Fig. 1143 shows an assortment of trays and baskets different sizes which may be used according to the fruit being packed. The fruits are to be assorted in size, wrapped in paper, and will be rowed in single layers in each tray. Each case will be marked to show the grade of the contents, thus a case containing eight trays with twelve peaches in each tray, will be marked 8 x 12, or 6 trays of 8 in each, 6 x 8. Nothing but the finest fruit will be allowed to go forward, and thus in time we hope to establish a reputation for Ontario fruits surpassing even that of California.

FIG. 1142.—CASES FOR COLD STORAGE PACKING.

Mr. Robertson, the Dairy Commissioner has this matter in hand, and is now in England making an opening for our goods; and Mr. W. T. Crandall has been appointed one of the permanent agents of the Department, to see after our consignments, and aid us in placing them in the proper hands in Great Britain. The great point to be observed on the part of the shippers will be, to keep the grade up to a high standard, and then we will surely establish a lasting trade.

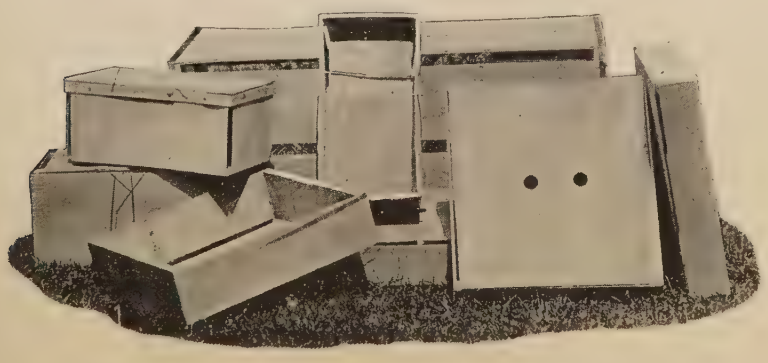


FIG. 1143.—TRAYS FOR COLD STORAGE PACKING.

THE DREADED SAN JOSÈ SCALE.

FIG. 1144.—PEAR INFESTED WITH SAN JOSÈ SCALE.

ON page 99 we warned Canadian fruit growers against the San Josè Scale, the worst pest that has ever invaded the orchards of the fruit grower. We stated that it had been found in New York State, and unless vigorous action could be taken it would soon reach Canada.

Our fears were only too true, for this terrible scourge has been discovered in an orchard near Niagara. The owner says he believes that it spread from a single peach tree imported from the States, and now probably fifty pear and peach trees are affected.

As soon as we were informed of the facts, our Association took action, and through the Secretary apprized the Minister of Agriculture both for the Province and for the Dominion, who immediately responded by sending Messrs Craig and Fletcher from Ottawa, J. H. Panton, Professor of Biology, at Guelph, and W. M. Orr, Provincial Superintendent of Spraying, to learn the views of the growers. About thirty of us assembled in the orchard affected, and after studying the insect and becoming acquainted with the appearance of the infested trees, we met together under a fine old oak and discussed the situation.

Finally it was moved by the writer, seconded by W. H. Bunting, St. Catharines, and unanimously *Resolved:*

1. That this meeting, representing the Ontario Fruit Growers' Association and the fruit growers of the Niagara District, desire to thank the Hon. Sidney Fisher, Minister of Agriculture for the Dominion, and the Hon John Dryden, Minister of Agriculture of Ontario, for their kind interest shown in our welfare by sending us Professors J. Fletcher and J. Craig from the Central Experimental Farm, Ottawa, and Prof. J. H. Panton of the Agricultural College, Guelph, and W. M. Orr, Superintendent of Spraying, to meet us for the purpose of obtaining our views regarding the best means to be employed for the prevention of an invasion by the San Josè Scale.

2. That this meeting earnestly request the Department of Agriculture both of the Dominion and the Province of Ontario to send out a competent inspector to inspect the orchards and nurseries in Southern Ontario at the earliest possible date and that, in case the area affected should be found to be small in extent, that the trees and plants affected be utterly destroyed and the owners compensated for the same, but, if the pest is found to be widely scattered, we request that very effective measures be adopted for the destruction of the insect.

3 That we ask the Dominion Government to pass vigorous legislation prohibiting the importation of nursery stock from the United States except under the most rigorous inspection, and that the ports of entry through which nursery stock may be admitted be confined to one or two points.

4. That the importation of fruit from states where orchards are known to be infested with San Josè Scale be also entirely prohibited.

With reference to methods of destroying the insect Prof. Howard of Washing-

ton, writes: "The only perfect results that have been reached have come from the application of two pounds or more of commercial fish oil, or whale oil soap to a gallon of water, soon after the leaves fall in the autumn."

The following is a list of food plants of the scale, viz: Apple, pear, peach, plum, cherry, apricot, quince, spiræa, raspberry, rose, hawthorn, cotoneaster, gooseberry, currant, elm, linden, osage, orange, enonymus, acacia, alder, Weeping willow. It is evident, therefore, that if once this insect becomes distributed throughout our country it will be impossible to extirpate it.

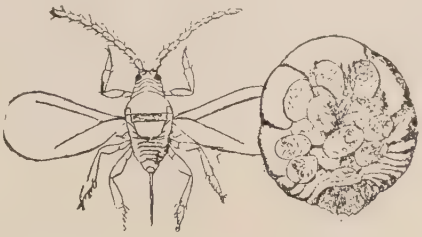


FIG.—1145.—MALE AND FEMALE SCALE MAGNIFIED.

THE PLUM CURCULIO.

FIG. 1146.—THE GENEVA TYPE OF CURCULIO-CATCHER.

THE mature curculio lays the eggs in the fruits when they are very small, usually beginning its work as soon as the flowers fall. These eggs soon hatch and the little maggot bores into the fruit. Those fruits which are attacked whilst very young ordinarily fall from the tree, but those which are attacked when they are half or more grown may adhere to the tree but are wormy and gummy at the picking time. The mature beetles are sluggish in the mornings and are easily jarred from the trees. Taking advantage of this fact, the fruit grower may jar them into sheets or a large canvas hopper which is wheeled from tree to tree upon a wheel barrow-like frame

and under the apex of which is a tin can into which the insects roll. One of these hopper machines is seen in Fig. 1146. There is a slit or opening in one side of the hopper which allows the tree to stand nearly in the middle of the canvas. The operator then gives the tree two or three sharp jars with a padded pole or mallet. The edges of the hopper are quickly shaken with the hands and the insects roll down into the tin receptacle. In this receptacle there is kerosene oil, or it may be emptied from time to time Just how long this machine is to be run in the orchard will depend entirely upon circumstances. It is advisable to use the catcher soon after the blossoms fall for the purpose of finding out how abundant the insects are. If a few insects are caught upon each tree, there is indication that there are enough of the pests to make serious trouble. If after a few days the insects seem to have disappeared, it will not be necessary to continue the hunt. In some years, especially in those succeeding a very heavy crop, it may be necessary to run the curculio-catcher every morning for four or five weeks; but, as a rule, it will not be necessary to use it oftener than two or three times a week during that season; and sometimes the season may be shortened one-half. The insects fall most readily when the weather is cool and it is therefore, best to get through the whole orchard, if possible, before noon. Upon cloudy days, however, the insects may be caught all day. Although this may seem to be a laborious and expensive operation, it really is not so. A smart man can attend to 300 or 400 full bearing trees in six hours, if the ground has been well rolled or firmed as it should be before the bugging operation begins. But whether the operation is troublesome or not, it is the price of plums and the grower must not expect to long succeed without it. The same treatment is essential to the saving of peaches and rarely, of sour cherries.—Cornell Bulletin 131.

BRITISH LOCAL WEIGHTS AND MEASURES.

IN Wolverhampton apples appear to be sold by the pot, and a pot weighs 75 pounds, but in Warwickshire, which is not very far away, a pot only weighs 40 pounds, though in the latter case it would appear that only peas and beans are measured by this standard. The curious may wonder if a pot of apples weighs 75 pounds in Wolverhampton, what might be the measure of a pot of pears in Gloucestershire. In Cornwall, a bushel of corn equals 240 pounds, whereas in Sunderland, a bushel only weighs 46 pounds, and in Hereford, 63 pounds. Why, again is a stone of live meat equal to 14 pounds and a stone of dead meat to 8 pounds? Strawberries are sold by the "punnet" in Greenock, while fruit in Forfar is sold by the Scotch pint. The Scotch pint, by the way, generally equals three of the Imperial pints, but in Dumfreisshire a Scotch pint equals four Imperial pints. Vegetables in Northamptonshire are sold by the "mollies," which vary from 12 to 40 pounds. In Cambridgeborrough it is by the yard that butter is sold. One would think that the same measure should be used in measuring wheat, barley and oats, but in Buteshire a boll of wheat equals 240 pounds, and a boll of barley equals 320 pounds, while a boll of oats in Argyleshire equals six bushels. In Flintshire a "hobbet" of old potatoes weighs 200 pounds, and a "hobbet" of new potatoes 210. A peck of potatoes in Gloucester equals 14 pounds, a peck of potatoes heaped in Gloucester equals 16 pounds.—*Manufacturer.*

PEACH CURL (Exoascus deformans.)

AT this writing (June 3) the promise of an abundant yield of peaches in the Niagara district is becoming dark, because of the peach curl which is so bad in some orchards that the trees will no doubt be entirely defoliated; and probably stripped of their fruit also We regret we have no sure remedy to give our readers for this fungus; some have seemed to reap benefit from an early spraying with Bordeaux mixture, and we hope this may prove effective.

The difficulty in the way of an effective remedy is easily understood when we explain that the fungus is intercellular, that is it grows between the cells of the interior of the leaf, and is thus shielded from reach, except as it breaks out to mature its fruiting spores. The twigs and leaves are both affected by the fungus, which has the effect of increasing the cell's growth in the parts affected, and in consequence the leaf is made to curl out of shape as shown in Fig. 1147 an illustration from Cornell Bulletin page 73. The evil is perennial in the leaf buds, in which it passes the winter, and quickly develops with the growing leaf in early spring. When ripe the asci (or spore cases) pierce through the outside skin of the leaf, and are freely discharged to continue the spreading of the evil.

Fig. 1147.—*Prunus persica* (*L.*), *Perch.* (*Exoascus* (*B.*) *Fuckel.*)

FIG. 1148.—PLUM POCKETS. *E. longipes.*

There are several forms of exoascus, affecting the cherry and plum, but the effects differ; that in the plum for causing what is commonly called "plum pockets" (Fig. 1148).

Since the fungus is perennial and lives over winter in the leaf buds, it is evident that trees once affected is likely to show the disease the succeeding season, providing climatic conditions are favorable.

THE removal of old canes, leaves no hiding place for worm or bug, or eggs for same. It also allows the free circulation of air and the sun penetrates the centre of the bush, making canes strong and vigorous with a good development of fruit buds for the following season.

VALLEY OF THE DON, TORONTO.

THE surroundings of our Queen City are most picturesque, and the inhabitants can blame no one but themselves if Toronto is not bounded in several directions by the finest parks in Ontario. The accompanying scene in the Valley of the Don, is an example of the beauty which Dame Nature has bestowed upon the east end, a ravine which might afford the most delightful drives imaginable, and numerous views of equal beauty may be taken any day by the camera of the artist.

Considerable change has taken place since a hundred years ago, when the wolf and deer were almost in undisturbed possession. In October 1801, for example, Joseph Willcox writes in his Journal, 8th, "I saw a deer in the bog, I fired at him and missed him." 12th, Set off for the mill, and on our way killed a deer in the bog; I fell out of the canoe, and had to swim ashore, but carried the deer to the mill, and dressed a quarter of him for our dinner."

This Mr. Wilcox came to Toronto from Ireland in February 1800, and held an office under Mr Russell, then Receiver-General for Upper Canada. His MS. Journal is quite a curiosity, but not always reliable, as when he speaks of the "*Humber as navigable nearly two miles for large ships?*"

Fig. 1149.—Valley of the Don, Toronto.

THE CANKER WORM.

THE Canker Worm is reported as being very destructive to apple orchards in some parts of the Niagara peninsula. A box of apple twigs already half denuded of foliage, was brought to this office on the 31st of May, accompanied by the anxious inquiry for some remedy. Of course we suggested spraying with Paris green, but the person claimed that he had already tried this without effect, and that in the summer of 1896, his orchard looked as if a fire had been through it, owing to the devastation of this worm.

FIG. 1150.—MOTHS OF CANKER WORM

Probably the Paris green was not put on in a sufficiently fine spray, and consequently ran off without covering the foliage, or perhaps it was not applied underneath the foliage, and the worm could find plenty of food free from poison, or perhaps not continued faithfully enough.

We also suggested the trial of a circle of sticky substance about the trunk, applied in early fall on a paper bandage, or a circle of cotton batting. The object is to trap the female moth before she lays her eggs. She is wingless (see Fig. 1150 b) and after coming out of her chrysalis, her first aim is to ascend the trunk of an apple tree, and meet the male moth (Fig. 1150) This plan is effective if persevered in, but must be kept up for a long time, for the females successively emerge from their cocoons during the mild days both of the fall and the early spring; it is consequently much more troublesome than spraying with Paris green, and is rather a prevention than a remedy. But it has been thoroughly demonstrated that Paris green will effect the destruction of the Canker Worm if persevered in. Of course when the worm has been neglected until it has become very numerous, it will require a large quantity of poisoned foliage to effect their complete route, and considerable expense. Prof. Bailey used 1500 gallons of Paris green water in seven days, on 240 trees, from May 10th to 17th in the work of destroying these worms in a badly infested orchard, but he was successful in utterly routing it at last

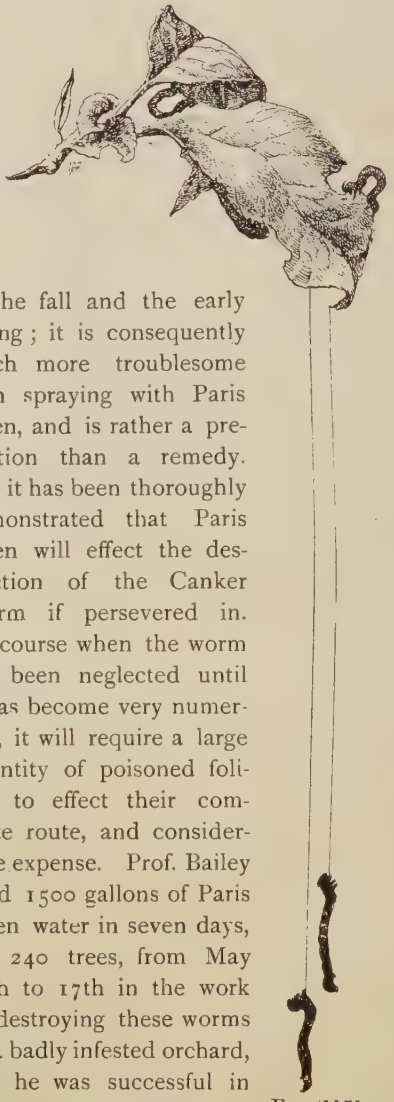


FIG. 1151. See Cornell Bulletin.

Professor Fletcher, Dominion Entomologist, writes:—Notwithstanding the occasional complaints that Paris green is not a very satisfactory remedy for the Canker Worm, this is still the best remedy and the one that we have to rely on for the controlling of this insect. The chief thing to be remembered is

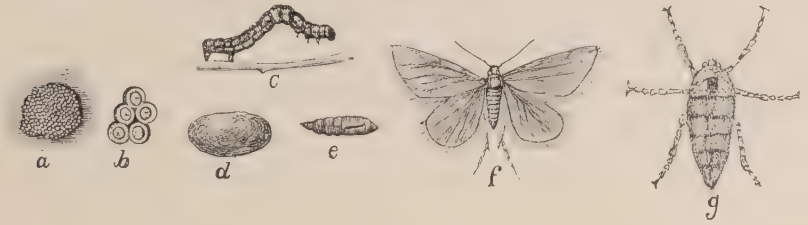


Fig. 1152.

that the application should be made early, as soon as the young Canker Worms appear. I know of nothing better to do than to repeat the spraying, being sure to add to the Paris green an equal amount of fresh lime, so that the trees may not be injured.

There are two species, *Anisopteryx Vernata* is the spring Canker Worm, which usually does not escape from its cocoon until spring, see Fig. 1152 (*f*) male, (*g*) female; (*c*) the worm which is olive green or brown; and (*b*) eggs, dark with a small cluster of eggs natural size near at (*a*), and (*d*) a chrysalis.

The other is *Auisopteryx pometaria*, the fall Canker Worm, which is easily distinguishable from the former, by observing the differences in any stage of development, as *e. g.*, the shape of the egg, or the markings of either the male or female moths. The latter appears to be the one more commonly met with in the Niagara peninsula.

Hitherto our Superintendent of Spraying for Ontario, has directed his efforts almost wholly against codling moth and apple scab, two of our ills; but we believe it would be well to make one or two special experiments on the destruction of the Canker Worm.

MAULE'S JAPANESE QUINCE—PYRUS JAPONICA MAULEI.

THE Japanese quince, *Cyrus japonica* or, as it is often called, Cydonia japonica, is a very beautiful and desirable shrub where the climate is not too severe; but at Ottawa, where the winters are very cold, it is quite unsatisfactory; the wood killing back more than one half and the flower buds only surviving when well protected, and rarely more than a foot above the ground. A more recently introduced variety, *P. Japonica Maulei* is quite hardy at Ottawa, the leaves starting from the tips of the branches and the flowers being much more abundant than in the common species. A hedge of this pretty shrub at the Experimental Farm has been almost covered with bright red blossoms since May 10th. It fruits freely and in the autumn the yellow quinces make it very attractive. These have a strong, pleasant, aromatic odor, but are usually considered as unfit for food.

W. T. Macoun.
Central Expi'l Farm, Ottawa

CULTURE OF GOOSEBERRIES.

THE gooseberry, under favorable conditions, is enormously productive. It is a fruit that does not like too much hot sunshine, or a hot, dry soil. The best gooseberries I ever grew was on a rich, cool, moist, heavy soil, well underdrained. It does better on a clay loam than on a sandy loam, and in a young orchard, where it will be partially shaded, than in the open sunshine. I have seen many very productive bushes, or shrubs, of gooseberries growing in rows of bearing apples, pears, peaches and plums. When planted in such positions they should be heavily fertilized that neither trees or shrubs should suffer for want of food.

The great obstacle to the production of the finer varieties of gooseberries in this country, has been that powdery mildew, caused by a parasitic fungus, called Sphaerotheca morsuvae, which attacks both leaves and fruit. Our attempts to grow the large, delicious English varieties have been baffled by that fungus until most horticulturists have abandoned the attempt and restricted their efforts to growing such American sorts as are but little subject to mildew, such as Houghton Seedling, Downing and Smith's Improved. Of late years, many have succeeded in producing large crops of Industry, an English sort, less subject to the fungus growth than the others. Recently there have been some promising American varieties introduced, notably the Columbus.

In October, 1892, while on a visit to Cambridge, Mass., I called upon Benjamin Green Smith, Treasurer of the American Pomological Society who, for health and pleasure, cultivates a good-sized garden, in which he grows most of the species of fruits that will mature in that climate. I saw there twenty varieties of the English gooseberries, which he assured me he had grown for nearly twenty years, free from mildew. They were planted on the north side of currant bushes, by which they are partially shaded. They are highly fertilized and well pruned. Last summer I saw growing on the home grounds of Mr. Green, editor of Green's Fruit Grower, Lancashire Lad, a large English variety, exceedingly productive and free from mildew. These successful attempts encourage the hope that the finer varieties of the gooseberry may be successfully grown in this country with suitable effort. The gooseberry succeeds in the cool, cloudy, moist climate of England. If we as nearly as possible approximate the conditions under which it flourishes there, by planting on cool, moist soil, partially shaded, mulch heavily during summer and spray a few times with a simple solution of copper sulphate, or potassium sulphide (liver of sulphur) there is no reason why we may not succeed.

Gooseberries are propagated to some extent by cuttings, but generally by layers. The earth is heaped in a mound around the bushes and the young sprouts will strike roots. They should be planted in rows 4 by 4, on a rich, heavy soil, well cultivated and heavily pruned. The fruit grows on buds formed on two-year-old wood and on spurs and buds of

older growth. Pruning should be directed to cutting back the new growth and occasionally cutting out superfluous shoots. Some cultivate in low tree form, but I prefer the shrub form as the more natural way of growing. It will richly repay for very thorough culture.—Green's Fruit Grower.

FRUIT IN COLD STORAGE.

The following details are from the evidence of Mr. Jas. W. Robertson, Dairy Commissioner before the Committee of Agriculture.

SPECIAL provision has been made for trial shipments of fruits, particularly those that have not hitherto been exported with any degree of success, such as grapes, pears, peaches, and tomatoes, which may be called either fruit or vegetable. In 1895 a trial shipment was practically entirely ruined on the railway car between the place it was sent from and Montreal. A cold storage chamber on the steamship had no regenerative magic to bring back what was spoiled, to its primitive condition of excellence.

By Mr. McGregor:

Q. Have you inspectors at Montreal now? A. One is engaged for this season. One of the essential conditions, for the safe carriage of the tender and easily injured fruits, is that they should be thoroughly cooled before they are put into the railway car. If cooled to a temperature of 35° or 36° Fahr., practically all fermentation will be stopped, and the boxes of fruit will not generate heat by their own ripening. When fruits are put into cases warm, and these are put directly into a car, the ripening of the fruit generates heat. In that way the fruit will become self-destructive. A cold storage building has been erected at Grimsby, Ont., at the expense of the Department, for these trial shipments. Several of the growers there have agreed to furnish at least one carload per week. The fruit will be thoroughly cooled before it is put aboard the refrigerator cars; refrigerator cars will carry it to Montreal; a special cold storage chamber will receive it on the steamship; and there will be some one in England to look after the reception and distribution of the fruit there. In this way two things will be determined: Firstly, the practicability of shipping this class fruit to Great Britain. It may not be practicable. Pears may decay from the heart. Grapes may lose the bloom on their skins from some cause we do not understand. It may not be practicable. I think it wholly practicable; this will furnish proof. Secondly, we shall learn whether the trade can be made profitable. It might be practicable and not be profitable. These two propositions will be demonstrated; and the fruit-growers can carry on the business afterwards in the light of the know-

ledge obtained by these experiments. Grimsby was selected because that is the only place where the fruit-growers would guarantee to furnish a carload of such fruit per week. The information gained will be equally available and useful to all the fruit-growing districts in Canada.

By Mr. MacLaren :

Q. How many kinds of fruit do you propose to ship? A. Grapes, pears, peaches and tomatoes.

Q. Not strawberries? A. No, not this year. After the first year no doubt all kinds of trial shipments will be made. The fruit-growers of the Niagara district have agreed to purchase the cold storage building after three years, if the trial shipments are a success. The Department in the meantime accepts the responsibility of meeting the initial cost of the building, guaranteeing the shippers against loss, and seeing after the shipments.

Refrigerator cars fully iced will be run regularly on the main lines leading into the shipping ports of Montreal, Quebec, St. John, Halifax and Charlottetown. Shippers making use of refrigerator cars will be charged the regular "less than car load rate" from shipping point to destination. No extra charge will be made to them for the cold storage service or for the icing.

The railway companies have agreed to provide refrigerator cars properly insulated for the protection of the perishable freight they are intended to carry. In some instances in past years the refrigerator cars have been such in name only. The insulation has not been thorough; the doors have not been quite close; cars have not been properly cleaned; and the pipe through which the water drained from the melted ice opened direct into and out of the car without any trap. That permitted the cold air to flow out, and the cooling influence of the ice was left along 200 miles or less of railway track without benefiting the contents of the car. Drawings have been prepared to show how an ordinary box car can be insulated to give satisfactory service for the carriage of butter and other perishable products on short runs.

It is recommended that the refrigerator cars for the special service arranged for by the Department of Agriculture be painted white, (1) for the sake of increased coolness, as cars painted white radiate the heat of direct sunshine much more than those painted any other color; and (2) for the purpose of making them distinctive and calling the attention of shippers, farmers and others who may observe them as they pass along the line with the conspicuous inscription "Government Cold Storage Line."

Cold Storage Inspectors.

The Department has engaged a cold storage inspector. His main duty is to see that the cold storage buildings and cars are in good condition and giving satisfaction to those who use them. We will have another inspector stationed in Montreal to look after through shipments; and in the case of a through shipment missing the steamer, as may happen through unavoidable delay on the road, he will see that the goods are stored in a proper cold storage building till the next steamer with cold

storage chambers goes out. Heretofore, that has not been any one's business, and sometimes cars of butter and cheese have been left on the wharf or in the yards; and the contents have been damaged. If notice is given to the inspector by the shipper at the starting point, he will see that it is taken care of; and only the actual outlay for cold storage will be charged forward on the Bill of Lading. It is not thought right that the Government should do more than this free; no charge will be made for the services of the inspector.

GATHERING AND SELLING THE STRAWBERRY CROP.

THE subject assigned to me I consider a very important one, although the past four years we have been bothered very little in gathering and selling the strawberry crop. The manner of picking, packing and marketing is an important factor in growing berries, and it often determines the success or failure of the business. In picking we employ mostly women and girls, and have no small children at any price. Each picker is supplied with a six-quart picking stand, and two pick on a row, one on each side of the row. The boxes are well rounded up, and no over-ripe or soft berries are allowed in the box. When the stand is full, it is taken to the packing shed and each picker receives a six-quart ticket, provided the fruit has been properly picked. Pick all beds four times a week, picking everything clean on Saturday.

A person who will not pick fruit clean from the vines and place in the box without bruising and stain or dirt, in or out of the box, should be discharged at once. If fruit growers, in the start, will insist on thorough systematic work, our pickers will soon learn to do their work well, and many dollars thus be saved. Uniform prices, so far as possible, should be paid to pickers, and one thing bear in mind, large fruit can be picked at one cent per box easier than inferior fruit at one and one-half or two cents. Therefore, good varieties in good soil, well cultivated, will save you money in picking.

The fruit grower must be prepared to handle his berries promptly, and know just what to do with them as soon as ripe. All boxes and cases should be provided beforehand and pickers engaged. Your boxes and cases should be well made, clean and neat, without stain or dirt. Never use old or second hand boxes and cases, as the looks of a package has a good deal to do with selling the fruit. Let your boxes be well filled, and don't put poor fruit in the bottom. Sort out all imperfect, soft or green fruit and throw it away. You cannot be too strict in the picking and handling of the strawberry crop. Get your berries on the market early in the morning; if sent by express, they should go on the first train in the morning or late the afternoon before and be ready for the early morning trade. If a large shipper, I would not send the whole shipment to one house, but divide them up between two or three good firms. In that way they are all sold early in the morning and bring the top price. Berries for long shipment should be picked before fully ripe, and not when wet with

dew or rain. If the weather is hot, leave them in a cool place for some time before packing in cases and shipping. Cases should be neatly directed on *both ends*, and your own stencil on the sides or top. If you have long shipments to make, grow only such varieties as will reach their destination in good order. Ship to small towns only on regular orders and at agreed prices.

Always bear in mind that *choice fruit* is always in demand at *good* prices, and the market *never* overstocked; and that poor fruit never sells well, brings low prices, and the market is easily overstocked; that it costs as much to raise poor fruit, costs more to pick poor fruit; that it costs as much to box and case poor fruit; that express charges are just as high on poor fruit, and when sold it is after good fruit is gone, and then at half price. Another thing in marketing berries is to pick them before they are over-ripe, especially if you want to ship them a long way to market. I require my pickers to throw away all berries over-ripe or soft.

Some fruit growers lose a great deal of their profits by undertaking to top their berries out with a better variety of berries. Now, whatever else you do, let the quality be as good at the bottom as at the top. Whether your customers be high or low, rich or poor, give them good measure and good fruit. You had better take the poor berries and throw them away than to undertake to get them to market, because it ruins your reputation and ruins the balance of the fruit.—Minnesota Horticulturist.

THE CONSERVATION OF SOIL MOISTURE FOR STRAWBERRIES.

ALTHOUGH strawberry plants will not thrive where the soil is permanently wet, they do require an abundant supply of moisture, both during the growing and fruiting seasons. The non-observance of this requirement is the occasion of heavy losses. In the first place, the ground for strawberries is often left until planting time before plowing, and breaks up in clods, occasioning much labor in preparation with harrow and roller. Although it may be possible to put such a soil into fairly good condition for planting, the water which has been lost cannot be restored, and weeks may elapse before sufficient rain falls to keep the plants alive. It has been shown that more than 1,500 barrels of water, per acre, may escape from unplowed ground in one week, in excess of the quantity which will pass off from an equal erea which has been plowed and harrowed at frequent intervals. Moreover, the ground which has been plowed late will continue to dry out during the season at a rate in excess of the early plowed. This shows plainly that early plowing and frequent harrowing are essential, in order to retain the soil moisture, even though planting may be delayed. The difference between fall and late spring plowing, is still greater than between early and late plowing, especially as affecting the capacity of the soil to retain moisture during the season. The best preparation for a strawberry bed is fall plowing, where the soil will admit, and if not then as early in the spring as the ground is fit to work.

The prevention of escape of moisture from the soil during the growing season is also important, and this can be accomplished, very largely, by frequent cultivation, especially after every rain. It is quite as important to stir the soil after light showers as after heavy rains. Retaining of moisture after mulching during the fruiting season is no doubt a more practicable method than cultivation.—O. Ex. Station.

Flower Garden and Lawn.

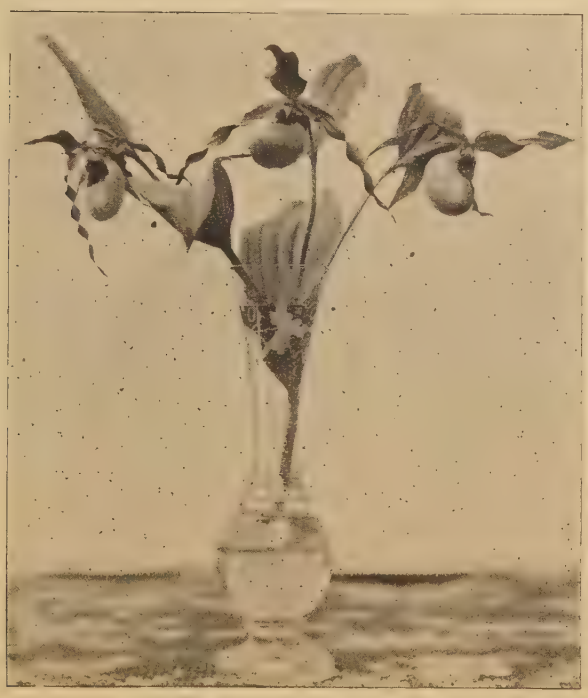


FIG. 1153—C. SPECTABILE, from photo. by Mr. R. B. Whyte, Ottawa (reduced one half).

OUR NATIVE CYPRIPEDIUMS.

LADIES' SLIPPERS OR MOCCASSIN FLOWERS.

IN every collection of orchids a prominent place is given, and justly so, to the genus Cypripedium. The number of species and hybrids is now very great, and yearly increasing, but none of the high priced foreign sorts surpass in beauty our native kinds. Few floriculturists are aware that in our bogs, scattered all over the country, there grow no less than five species of

this most beautiful genus of flowers. One of them, *C. Arietinum* is only of botanical interest, as it is rather small to be an effective garden flower, but the other four are among the most beautiful and desirable of all hardy plants, and can easily be transplanted from their native haunts to our garden borders. Of these, the most beautiful, most abundant, and singularly enough, considering the great contrast between its habitat and the most favorable spot in a garden, the most easily cultivated is *C. spectabile* or showy Ladies' Slipper, a large pink and white flower. The moccassin or, as it is botanically called, the lip, two inches long by one and a half wide, borne in pairs or sometimes singly on the top of rather coarse leafy stalks 18 to 24 inches high. It is found only in sphagnum bogs, sometimes in small clumps of a few plants, but often in great abundance. The most wonderful floral display I ever saw was in an open glade in a bog thirty miles north of Ottawa, where two to three acres were literally covered with this magnificent flower, many thousands of them being in bloom at the time, the last week in June. The best time to transplant it is, of course, when the roots are dormant, but as they are difficult to find then, the next best time is after flowering, when the leaves begin to wither, or as they show themselves above the moss in the spring. I have known them to be successfully transplanted in the blooming season by taking up a liberal portion of the surrounding bog, so as to disturb the roots as little as possible; but the nearer you can get to the dormant period the greater will be your measure of success. The best location in the garden is under the partial shade of trees, or on the north side of a close fence. The soil must be moist and rich, and should never be allowed to become dry in the growing season. They will not thrive in a dry soil or if exposed to the full glare of the sun.

FIG. 1154.—C. ACAULE, from photo. by R. B. Whyte, (reduced one half).

C. acaule. — The stemless Ladies' Slipper is a good deal like *spectabile* in appearance, the lip is a little longer and narrower, over two inches by one inch across, with a deep fold inwards along the top; the color is a good deal darker, more of a purple than a pink, and the white is not so clear. Its habit is quite different; instead of the strong leafy stalk of spectabile, two large leaves lie on the

surface of the ground from which rises a bare scape 12 to 15 in. high, bearing on the top a single flower; by some thought to be even more beautiful than spectabile. It is somewhat rare in this part of the country. I have never found it except in small clumps, though I believe it is abundant in some sections. Its habitat is dark, wet, rocky woods, often on hillsides. It is much more difficult of cultivation than any of the other species.

C. pubescens.—Large yellow Ladies' Slipper, a much smaller flower than *acaule* or *spectabile*, the lip being about 1½ inches long, bright yellow, with purple lines or spots, slightly flattened on the sides, more like a moccassin in shape than either of the others. Found in most woods and meadows, generally several stems growing from the one root, each terminating in a single flower. It is one of the easiest of wild flowers to naturalize in the garden, and is perfectly hardy. Some that I transplanted eight years ago are still blooming beautifully.

C. Parviflorum.—Small yellow Ladies' Slipper about two-thirds the size of *pubescens*, is thought by some botanists to be only a variety of it, but it is certainly a distinct form, differing from *pubescens* not only in size, but in being more freely spotted and in being compressed on the top and bottom instead of the sides. It also prefers moister quarters than *pubescens* being often found in wet bogs in the company of spectabile, it is, therefore, somewhat more difficult to transplant.

R. B. WHYTE.

Ottawa.

WET CORNERS—CLIVIA, CYCLAMEN.

A PORTION of my grounds being wet and boggy has been made one of the most interesting spots for a spare half hour. I have prepared a winding path through the cedars, willows, cranberries and other growth, and filled convenient spots and glade like openings with some of the valuable plants listed in your June No., adding many clumps of our native pink and yellow Cypripediums, the most beautiful of North-American orchids; also the white and pink hardy Hibiscus, the latter color grows wild in our lake marshes.

The Clivia resembles the Agapanthus in habit. The root growth is thick and fleshy, not bulbous; and as their season of growth is during our summer, they are of easy culture Blooming plants winter best in a fine temperature of fifty degrees, which is as low as most amateurs keep their conservatories, but five or ten less at intervals will do no harm.

When skilled growers find difficulty in drying off the Cyclamen without injury or loss, the amateur is almost certain to fail. Plunge the pot in a cool shady frame or border without watering until growth starts afresh, then re-pot and give full exposure to the light, shading from the direct rays of the mid day sun.

H. H. GROFF.

Simcoe, Ont.

FIG. 1155.—

Rothamagensis alba, Madame Jules' Finger, Michael Buchner,
Pyramidalis. Alphonse Lavalee.

THE LILACS (SYRINGAS).

FIG. 1156.—JEAN BART.

WE in Canada are but novices in Horticulture, and know as yet little about the many varieties of beautiful shrubs with which to decorate our lawns and gardens. — Much less do we know concerning the numberless varieties of each which our friends, the professional nurserymen, are originating and propagating for our (and their own) benefit.

One of the best known of ornamental shrubs is the lilac. Almost every one knows there is a white and a purple lilac, but how many know there are dozens of cultivated varieties of great beauty! These numerous garden varieties are artificially improved from several species, such as S. Chinensis from China, Emodi from the Himalayas, S. Japonica from Japan, Persica from Persia, S. Vulgaris from Persia and Hungary, and others. The writer is indebted to Messrs. Morris, Stone & Wellington, for a magnificent collection of lilac flowers from the nurseries at Fonthill, received on the 1st of June, representing thirty-eight named garden varieties. Such a grand display was well deserving of notice, and was the means of gathering together several members of the Board of the Grimsby Horticultural Society to study their characteristics.

1 Jean Bart
2 Marie Legrange
3 Madame Lemoine
4 President Carnot
5 Giant de Battailes
6 Michael Buchner
7 Rothamagensis alba
8 Pyramidalis
9 Madame Jules Finger
10 Alphonse Lavallee
11 Lemoinei Flore Pleno
12 Philemon
13 Mauve
14 Dr. Lindley
15 Rothamagensis rubra
16 Renoncule.

FIG. 1157.—LILAC BLOOMS.

Among the double white varieties before us, we note *Madam Lemoine*, beautiful thyrse of double flowers, *Marie Legrange*, magnificent panicles of single white, and *Frau Damman*, tress Fig. 1195 rosy red, fading to pink, very double, panicles closed and compact: *Michael Buchner* pale lilac, rose margined, flowers very double; panicle erect very large pyramidal, one of the most striking: *Presi-*

Fig. 1158.—

Jean Bart. Gaint de Battailes. Madame Lemoine. Marie Legrange. President Carnot.

immense, flowers medium, single, one of the best.

Of other new double varieties we note *Jean Bart*, Fig. 1156 long tress, 12 in. flowers rosy carmine: *Senator Volland*, *dent Carnot*, spikes compact large, flowers erect, doubled in a peculiar manner, by having one floret stand out from the inside of another, and sometimes a third; color delicate tint pale lilac, said to be

the best bloomer of the double varieties: *Renoncule*, panicles under size, compact, but looser than Volland and petals of flowers longer and more pointed; color azure mauve, very fragrant.

Of the single varieties we notice *Philemon*, a grand showy lilac of the darkest shade, almost purple: *Pyramidalis*, panicles very large and pyramidal in form, inches in length, and bending to the ground with their weight of flowers.

The accompanying cuts from photos may further assist in giving some idea of the varieties mentioned.

Our Association has introduced to its members quite a number of these beautiful varieties in the plant distribution of this year, not sparing considerable ex-

FIG. 1159—FRAU DAMMAN.

flower large azure rose, carmine in bud. *Dr. Lindley*, large compact panicles, purplish lilac, one of the finest.

Rothamgensis alba and R. rubra are two interesting varieties of Rothamgensis a species produced by crossing S. vulgaris (common) and S. Persica (Persian), and excelling the latter in robustness of growth; panicles sometimes 10 to 16

pense in so doing, and we hope this may be the means of creating a deeper interest in the cultivation of these beautiful shrubs.

A collection of varieties would interest any amateur, not planting separately, but in large clumps along the carriage drive, or near the border of the yard.

DINNER TABLE DECORATIONS.

THE prettiest and most effective vase that I have ever seen is a plain dark green globe-shaped glass (Fig. 1160), which I have found in four sizes and wish very much I could find some of still larger size than these. The rich green harmonises perfectly with everything I have put in it. Flowers look well arranged in silver dishes and vases, if the vases are plain, of simple outline and artistic in design. Ordinarily vases are better if clear or of neutral tint.

All dinner table decorations should be either very low or very high — low enough to look over from one side of the table to another, or high enough to look *under*. Nothing is more annoying to one seated at table that to dodge about a mound of flowers to catch a glimpse of one's opposite neighbor.

FIG. 1160.

Where ribbons are used they must always match either the flowers or the foliage. They may be a lighter or a darker *shade*, but the *color* must be the same. Gilt and tinsel are in bad taste, and in fact I have never seen either tinsel, gilt or ribbon used on a dinner table with good effect. A common mistake is in crowding the table with flowers and ferns, leaving no place for the service.

The prettiest dinner table decoration I have ever seen was this. The table was long enough to seat twenty-four guests; it was six feet wide and had oval ends. A margin of eighteen inches of pure white damask was left all around the table upon which to lay the service, and a set of pans an inch deep was made at the tinsmith's to entirely cover the

oval center left after reserving the eighteen inches of margin. These pans were made in sections so that they could be used again upon smaller tables. The pans were filled with little plants, ferns, palms, lycopodiums, etc., none of which were over nine inches high. The shallow pans being in sections were readily arranged first, and then placed upon the table. They also protected the table linen, for the little plants were growing in their own earth and were simply lifted from the pots and arranged in the pans with the higher ones in the center and the lycopodiums, etc., drooping over the edge. In among these were placed some delicate cut flowers, violets, lilies of the valley, small roses, etc.—American Gardening.

BARNYARD MANURE suffers much loss in leaching and drying. Prof. Roberts shows that horse manure when thrown out in a pile unsheltered from the weather, loses nearly half its value in six months; mixed barnyard manure when piled in a close pile so that fermentation is very slow but without protection from rainfall, loses about one-tenth of its value; while the loss if thrown under eaves to be leached by rains and thaws of the winter, is much greater. At the N. Y. Experiment Station, fresh manure piled in conical heaps in January, shrank 65 per cent. in weight by April, and the loss of its fertilizing ingredients was equal to $3 per cord of manure.—Am. Agriculturist.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages. of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

SPRAYING PLUM TREES for leaf spot appears to pay well judging by results given last year by Mr. S. A. Beach, of Geneva, N. Y. The total yield of marketable fruit, in pounds, was 45 per cent. greater where the trees were sprayed, than where they were not sprayed. The trees were sprayed twice with Bordeaux mixture, once about May 25th and once about three weeks later.

THE NOVA SCOTIA F. G. A. met at Wolfville, on the 20th of January, and passed a resolution inviting the Ontario Association to co operate with them in engaging the Federal Government to grant more liberal aid in establishing and conducting fruit experiment stations in the various provinces. If the Nova Scotian Department of Agriculture would establish fruit experiment stations, such as the Minister of Agriculture for Ontario has done in this Province, perhaps the Federal Government would co-operate. The Dominion is utilizing these stations in Ontario, and spending some money in making them more effective.

SPRAYING a large orchard like the one at "Maplehurst," of nearly one hundred acres of all varieties of fruit, is no small undertaking. It requires about one hundred pounds of copper sulphate, twelve pounds of Paris green and one hundred pounds of lime for each application. It greens everything, men, horses, clothing, all come in from the field a sight to behold. Clothing used for this must be kept for the purpose, for it is never fit to be seen at other work. But it improves the vigor of the trees and lessens the attacks of both fungi and insects—so it pays. The only question is, how often? We do not think many can be

induced to spray five times as is advised. Indeed very few will ever do it more than two or three times, unless the clearest proof is given that more applications will pay in dollars and cents; viz., once before the leaf buds open, once before bloom, and once after.

THE INDUSTRIAL FAIR at Toronto this year promises to surpass that of any previous year, as indeed it should. The poster is a credit to the management, and is quite artistic. It is headed "Canada's Great Victorian Era Exposition. and Industrial Fair," and shows fine pictures of Her Majesty in 1837 and in 1897; also of the Premier in 1837 (Sir John A. McDonald) and in 1897 (Sir Wilfred Laurier). Fortunately the President of our Association is on the Board of Management, and is doing everything in his power to give prominence to both fruits and flowers.

ABOUT THREE HUNDRED named varieties of apples where shown by the Fonthill Nurseries last year at the Industrial, the largest collection ever exhibited in Canada. The largest named collection of fruits of various kinds ever shown was made by our Experiment Stations, and their exhibit will increase in interest year after year.

THE HABITS, FOOD AND ECONOMIC VALUE OF THE TOAD, forms the subject of bulletin 46, Mass., A. C. It is shown that only eleven per cent. of the food of the toad is composed of spiders and insects in any way helpful, and eighty per cent. of those which are injurious, such, for example, as sow-bugs, myreapods, grass-hoppers, crickets, may-beetles, tent caterpillars, gypsy moths, cut worms, army worms, etc., etc. Gardeners, therefore, should encourage the presence of this animal; artificial shelters may be made by digging out shallow holes in the ground, and partially covering them with a board.

DOUBLE APPLE BLOSSOMS.—Mr. W. J. Kerr, of Renfrew, writes of a freak in the way of a double apple blossom which he found on a Duchess apple tree in the County of Renfrew. Mr. Kerr says he will take note of this from year to year and report concerning its constancy. Possibly a double-flowering apple tree might be propagated from this branch, which would make a fine ornamental tree. Mr. Kerr compares the blossom to that of a double white rose.

COOK'S HARD SOAP EMULSION is convenient because it may be used with either hard or soft water. It is made by dissolving ¼ pound of hard soap in two quarts of boiling water, and while still hot add one pint of kerosene, and stir rapidly. This will emulsify at once and when needed for use is diluted with twice its bulk of water. The *Riley-Hubbord* formula is ½ lb. hard soap dissolved in 1 gallon boiling water, to which is added two gallons of kerosene. When wanted for use, dilute with 9 times the quantity of soft water.

ONE OF THE FINEST PEACH ORCHARDS in the Niagara District is that of Mr. E. McCardle, near St. Catharines. We visited it on the 10th inst. and cannot speak too highly of its excellent condition. First the *cultivation* was almost perfect, not a weed or spear of grass to be seen, and constantly worked up;—Secondly the *fertilizing* was liberal, chiefly with wood ashes; Thirdly the *pruning* was an example for imitation, not only the dead wood well thinned out, but the growth well shortened back every spring. The only apparent evil is the Peach Curl, which affects the best orchards as well as the worst in wet

seasons; but otherwise the large orchard is a picture of health, and is loading well for a fine crop of peaches.

THE LECTURE by Prof. Panton before the Paris Horticultural Society on the 19th May was a most instructive one, and the accompanying steriopticon illustration of prizes were greatly appreciated. There were twelve entries for the apple exhibit, one gentleman showing eighteen varieties, a large number considering the season, and all in excellent condition.

WE NOTE with great regret the announcement of the death of Mr. Jas. F. Webster, Hamilton, on the 5th of June. Mr. Webster has been a frequent contributor to our pages, and was ever ready to serve the best interests of our various Horticultural Societies.

FRUIT PRESERVING FLUIDS.—We desire to caution our readers against vendors of recipes for preserving fruits for culinary use, who go from door to door. Humbugs are the order, and some people seems to be more ready to spend their money on them than upon useful articles. Fifty cents for a recipe to dissolve 36 grs. salicylic acid in a quart of hot water! It does preserve the good appearance of the fruit; it is one of the chemicals which the writer used for preserving fruits for exhibition at the World's Fair, but is not intended for taking into the human system. Indeed salicylic acid, if used constantly, is very injurious to health.

THE SAN JOSÈ SCALE is pretty widely distributed in the United States, by means of both nursery stock and fruit. The national nursery man is sure that one is about as important a factor as the other, and any Act that does not include the prohibition of the importation of fruit will be a failure. The most successful winter wash for the destruction of the insect is said to be 2 lbs. of potash dissolved in 1 gallon of water.

THE DISTRIBUTION OF THE SCALE by infected fruit is declared by many entomologists also to be quite possible. In a bulletin published in 1896 Professor Howard of the Department of Agriculture, Washington, says:— "Its importance from an economic standpoint is vastly increased by the ease with which it is distributed over wide districts through the agency of nursery stock *and the marketing of fruit*, and the extreme difficulty of exterminating it where once introduced, presenting as it does, in the last regard, difficulties not found with any other scale insect." The National Nurseryman says:—"A federal bill providing for the inspection of nursery stock and not for the inspection of fruit, will, according to the best authorities, leave the way open for the dissemination of the San Josè scale through an avenue known to the scientist and practical orchardist."

THE GAS TREATMENT of stock has been tried by the Entomologist of the Sewers Experiment Station, with some degree of success. Fumigating boxes, costing about $10 were used, in which packages were placed, and treated with hydrocyanide and gas. Possibly this treatment will be a success, generally.

MESSRS. REFORD & CO. write they have fitted up the steamers Iona, Hurona and Gerona for London, and Kastalia for Glasgow with cold storage for perishable freight under contract with the Government. Any one may have list of sailing dates from Montreal on application to them, 23 St. Sacrament St.

THE FRUIT GROWERS of Hamilton, Burlington and Winona met at the Royal Hotel, Hamilton, on the 19th, *re* San José scale. There was a large gathering, Mr. W. M. Orr, our Vice-President, occupied the chair. Prof. Panton, of the O. A. C., Guelph; Mr. Craig, of the Experimental Farm, Ottawa, and others addressed the meeting. A committee, consisting of A. H. Pettit, E. D. Smith, A. W. Peart, George E. Fisher and N. M. Black, was appointed to bring in a resolution. The following is a copy of the resolution, which was unanimously carried.

To the Dominion Government of Canada:

Resolved,—(1) That the importation from the United States, or any other country where the San José scale is known to exist, of nursery stock and such fruits as are affected by the scale, be entirely prohibited.

(2) That a thorough inspection of all nurseries and of orchards in those districts in which the scale has been found to exist, be at once entered upon, and that the trees so affected shall be uprooted and burned; and that the growers who may have trees affected with the scale, and thereby be subjected to serious monetary loss, be in a measure compensated for their destruction.

(3) And we beg most respectfully to request the Honorable Minister of Agriculture to at once take such action as will effectually destroy this enemy to the Horticultural interests of our country, and prevent the importation of trees and fruit in which may be concealed the germs for future development.

The Secretary was instructed to forward copies of this resolution to the members of Parliament representing fruit sections, asking them to urge upon the Government the most vigorous action possible.

REPLIES have since been received from the Hon. S. Fisher, Minister, and Mr. Thos. Bain, Chairman of Committee of Agriculture, to the effect that everything possible would be done to protect the interests of the fruit growers.

⁂ Novelties. ⁂

During the past three or four years several new varieties of fruits have been placed upon the market, that are either hybrids or of species that have not before been cultivated in this country. Most of them have been tested here, and thus far none of them have shown promise of value for any purpose whatever. The following are the varieties tested:

Mayberry (Japanese Golden). The plant resembles the red raspberry, and was raised by Luther Burbank, by crossing *Rubus palmatus* and the Cuthbert raspberry. It is claimed by the disseminators to form a bush six or seven feet high, and the fruit is said to ripen a month before the earliest raspberries. We have made two attempts to test this variety, but in both cases the plants failed to grow. Those obtained last spring were from Southern New Jersey, but the tops had been killed to the ground by the winter, and the roots were too weak to send up shoots. Judging from this experience, the plant will not stand our climate.

Loganberry (Raspberry x Blackberry). This is supposed to be a hybrid between the Aughinbaugh, a California blackberry and Red Antwerp raspberry. The plants are spreading and the leaves and canes greatly resemble the European raspberry, the latter being covered with prickles. The fruits resemble the blackberry in shape and structure, but are red when ripe. The plants seem about as hardy as our common varieties of blackberries, and they formed a few fruits last year on two-year old plants, but they have shown no valuable characteristics.

Strawberry-Raspberry (Rubus sorbifolius). This is a recent novelty from Japan. It sends up stems to the height of twelve or fifteen inches, which are covered with short, stout spines, as are the ribs of the leaves. The old stems die down each year and new ones are sent up from the roots. As grown here it seems to have no value, and as it suckers profusely it may become difficult to eradicate when it has obtained a hold of the soil.

Wineberry (Rubus Phœnicolasius). Another Japanese species introduced and quite widely disseminated several years ago. It seems to be wanting in hardiness, as it has killed to the ground nearly every year. The canes are somewhat spreading, and are covered with numerous reddish-purple hairs. The calyx is quite large and thick, and forms a sort of burr about the berry. The fruit is of a dark amber color, and is soft and rather acid. Of no value except as a curiosity.—Agricultural College, Michigan.

Question Drawer.

Insect on Norway Spruce.

953. Sir,—I send you sample of insect attacking Norway Spruce. They number thousands, though mostly in chrysalis state yet (May 28th). What will kill them, and not the hedge?

Adam Dunn, *Galt.*

Reply by Dr. Fletcher, Ottawa.

The spruce twigs from Mr. A. Dunn, of Galt, came safely to hand. The insects are the same species as was very abundant on a spruce hedge belonging to Dr. Smale, of Wroxeter. It is a species of *Retinia*, and as the moths are just now issuing, the remedy which suggests itself is to spray the hedge at once with kerosene emulsion, which will destroy many of the moths and prevent them laying their eggs again on the same hedge. This moth is well known, but it is only occasionally that it is so troublesome as you describe.

Hog Refuse for Fertilizer.

954. Sir, — Please give me recipe for preparing a mixture of hog refuse, blood, bones and hair, for a fertilizer.

D. Bolden, *Collingwood.*

Reply by R. Harcourt, Assistant Chemist, O. A. C., Guelph.

The best way to prepare a mixture of hog refuse, blood, bones and hair, for a fertilizer, is to thoroughly dry them and then grind to a fine powder. This will bring the whole mass into a convenient form for handling, and, at the same time, render more available the various fertilizing constituents which it contains, especially the phosphoric acid of bone.

This method may be impracticable for the farmer or fruit grower who wishes to make use of these crude materials. Good results have been obtained by breaking up the bone as finely as possible, by use of mallet or otherwise, and mixing it with the hog refuse, blood, etc., and composting with stable manure. Where a large amount of bone is to be treated, this method may not give the best results, as phosphoric acid of bones would be but slowly rendered available. A good plan for dissolving bones is to mix them with wood ashes and place in a tight box, covering the whole mass with damp earth to prevent loss of nitrogen, which will be liberated from the bones by the action of the lime in the ashes.

Gooseberries.

955. Sir, — What do you consider the best Red English Gooseberry? Also, the best White or Yellow? What is the average yield per tree, when not troubled by mildew? Mildew is unknown here. What is the general price obtained for ripe English Gooseberries? Can English Gooseberries be made a success on light sandy soil? Downing, Houghton, Smith's Improved and other American varieties yield well here, when manured, as does also the Industry; but the Industry is a very feeble grower, seeming to put all its vigor in fruit. Red Jacket is a rampant grower, but a shy bearer of late, poor-flavored berries.

D. J. Stewart,
Aitken's Ferry, P.E.I.

We would like some of our gooseberry growers to reply. At Maplehurst we have thus far grown only the American varieties, such as Houghton, Downing, Smith and Pearl. Recently we have added about fifty English sorts, which are not yet in bearing, excepting Industry and Whitesmith, the latter of which mildews considerably. We have always looked upon Whitesmith as the best white, and Crown Bob as the best red for growing in Canada.

The Alexander Apple.

956. SIR, — Can you give me the date and place of origin of the Alexander apple?

D. J. S., *A. F., P.E.I.*

The Alexander apple originated at Moscow, Russia, toward the end of the 18th century. It was called Aporta, until in 1817 Mr. Lee, a nurseryman near London, introduced it into England under the title of Alexander the First, in honor of the Emperor of Russia.

The Cabbage Maggot.

957. SIR,—I have been a subscriber for some years of the HORTICULTURIST and take a great pleasure and pride in its improvement, but I have not seen the Cabbage Maggot spoken of. Is there any way of getting at them? They appear to work at the root, are very destructive on cauliflowers, and last season they destroyed nearly my whole lot, up to the time they were the size of a man's fist. Any information you could give me will be appreciated.

GEO. W. BASCOM, *Galt, Ont.*

Reply by Dr. Fletcher, Central Experimental Farm, Ottawa.

I must apologize for not having answered your favor with regard to the Cabbage-root Maggot sooner, but I took it with me in my pocket when I was going to meet you at Mr. Thonger's orchards, and then forgot to speak to you about it.

The Cabbage Maggot is an extremely difficult insect to control, but I have always had sufficient success to pay for the application of the remedy, by treating the plants with White Hellebore. My method is to draw away the earth from around the roots and then syringe in, with some little force, a decoction of White Hellebore, made by steeping four ounces of White Hellebore in an ordinary pail-full of water. This not only throws out many of the maggots which lie in the earth close around the stems, but the hellebore also has the effect of killing the insects. The potash salt known as kainit is very highly spoken of by some of the large New Jersey onion growers for this same insect, and is worthy of a trial here. This salt both kills the maggot and acts as a strong fertilizer for the cabbages.

DAPHNE CNEORUM—GARLAND FLOWER.

THIS charming little shrub, native of Eastern Europe, began blooming on the 13th of May, and was still in full flower at the end of the month. A cluster of the sweet scented, bright pink blossoms terminate nearly every branch of this shrub, and when these are all opened it appears almost one mass of flowers. Although a low, slow growing shrub it is very desirable for the flower border and quite hardy at Ottawa.

W. T. MACOUN.

Central Experimental Farm, Ottawa.

The Fruit Crop.

Present indications are by no means so favorable as the promise at blooming. Cherries have blighted and thinned out very much; plums are badly taken by curculio; peaches, apples and pears are a fair crop of certain varieties, in the Niagara District, but not over-abundant; while, in some parts, peaches are reported a failure. Indeed, in most of the peach growing States of the Union, except Missouri, the peach crop promises to be very light.

Norfolk County.

SIR,—In the neighborhood of Simcoe Co. Norfolk, fruit prospects were never better. Apples, in spite of the great crop of last year, promise an average yield. Plum and cherry trees are heavily laden. Pears are a good crop. Small fruits of all kinds promise an abundant yield. Strawberries are coming on slowly and will be late. Peaches are not much grown; have heard of some fruit, but the trees are badly affected with leaf-curl.

Yours truly,

J. A. CAMPBELL.

St. Thomas Notes.

SIR,—Everything here is about two weeks later than a year ago. The May frost injured the early strawberry blossoms, but the crop promises to be up to the average.

Raspberries, notwithstanding the mild winter, are considerably injured by the cold, especially Shaffer and Marlboro'; Cuthbert and Turner are all right.

Currants will not be half a crop; Victoria and White Grape are well loaded, but Fay, Cherry and Versailles have only here and there a bunch. I find Victoria my favorite, Prince Albert next, and, for early, the Versailles; Fay the greatest bearer of the lot. Red Dutch and North Star too small.

Gooseberries will be about half a crop, which will be enough with last year's conditions. I only picked about half my crop (Downing and Smith's Improved), I could not get enough to pay for picking. Your correspondents keep on telling how to grow; can't some of them tell us how and where to sell them at a profit. It appears to me we must quit growing small gooseberries and selling them green, and grow the large ones and sell them ripe. People won't can green, sour gooseberries, when they can get other fruit as cheap as they could last year.

Apples, contrary to expectations, will be a fair crop. No Red Astrachan, but plenty Yellow Transparent and Oldenburg, and many of the winter kinds are bearing well.

Cherries will be a fair crop. Early Richmond injured by May frost. Montmorency and English Morello very well loaded. Very few sweet cherries grown here.

Plums give great promise, especially Lombard I have fifteen trees in chicken yard, and they are already bending with the fruit. I have not sprayed and I see no stung fruit yet. Varieties—Lombard, Bradshaw, Golden Prolific, Imperial Gage and Quackenboss. In another lot I have Pond's Seedling, Shipper's Pride, General Hand, the latter a very shy bearer. I have also Abundance, Willard and Burbank, but no fruit, though blossom. I begin to fear that the Japan plums will only do in the more favored sections of Canada, or where the peach will thrive.

Blackberries are in bloom now and promise an abundant crop.

Yours truly,

A. W. GRAHAM, *St. Thomas, Ont.*

Huron County.

SIR,—I went through my orchard recently. The cherries are a heavy crop, plums very good and very free from curculio; pears well loaded, small fruits in abundance, grapes showing well; apples, although very thick with blossom, will be a very light crop, nearly all off; all the time they were in bloom it was very wet weather; I said then I was afraid the apples would not set well, the pollen was all washed off, besides the bees couldn't work on it; we had no frost to hurt. I have found the Spys and Cabasheas generally shy bearers, but this year they were covered with bloom, young Spys as well. I find the Baldwins to be standing the best of all, but they will be a light crop; all other varieties almost no crop.

WALTER HICK, *Goderich.*

Ontario County.

SIR,—I have just got in after a drive of twenty miles through the fruit growing part of this district, and from notes taken, summarize the following:—Apples, 70 to 80 per cent. of a full crop; pears, 90 per cent.; plums, a full crop, and more, as many varieties are literally crowded; cherries, nearly a full crop, say, 90 per cent.; gooseberries and red currants, heavily loaded. Some complaints of mildew on gooseberries, where not properly sprayed; black currants, about 70 per cent; strawberries, good; grapes are late, but plenty of clusters formed.

Taken all round, the fruit crop will exceed last year, except in apples, which will be about the same, according to present appearances.

The warm weather, the past week, has made a marked difference in the size of the fruit; some neglected orchards are literally crawling with tent caterpillars and canker worm. When will farmers learn to protect their fruit trees, instead of having such unsightly monuments of brush and neglect as I witnessed to-day on a few, otherwise, beautiful farms?

R. L. HUGGARD, *Whitby.*

Oxford County.

SIR,—In reply to your post-card of the 23rd inst, I think the following will be about the estimate of the fruit crop in this district, although the season is somewhat backward, we have had no frosts worth speaking of to check vegetation, but generally cool weather for the month of June.

The outlook for the apple crop is most favorable, but not a full crop. Pears will be an average crop, the fruit comparatively clean and free from spot. The plum crop will be a good average, some places much affected with curculio. Cherries will be a medium crop. Gooseberries, raspberries and currants yielding abundantly. Peaches and grapes, very little grown in this section for market. Strawberries are a heavy crop, and if dry weather does not set in, will be fine in quality; so that the prospects throughout this district are on the whole very promising.

JAS. S. SCARFF.

Prince Edward Co.

SIR,—Your post-card of the 23rd received, regarding the fruit prospects in our section. Apples will be a fair crop; the cold, wet May caused many of the blossoms to drop off, but what is left will be better; the winter varieties are the best, the Snows bearing so heavily, will be light; the Duchess, as usual, looks well. Pears bid fair, but I see many of the Flemish Beauty are turning dark, and possibly many will be useless; Bartletts are good. Cherries, an abundant crop. Plums only fair. Strawberries wintered well and came through splendid, but for the last ten days hot, dry weather following on so much rain, has seriously hurt them; unless we get rain soon, crop will be light. Raspberries wintered well. Currants and gooseberries are also looking well. Above is a fair average report given by my growers.

WELLINGTON BOULTER, *Picton.*

Ottawa.

SIR,—From my own observation and all the information I could get since I received yours of the 23rd inst., the fruit prospects in this district are as follows:

Strawberries, very badly winter-killed, not over a quarter crop. Raspberries, an average crop. Currants, over an average. Gooseberries, a very heavy crop, the largest for many years. Grapes, promise well. Cherries, light and not set well. Plums, domestic varieties, none; American varieties, a light yield; native red, much below the average. Apples, notwithstanding the enormous yield of last year, promise nearly an average crop.

R. B. WHYTE, *Ottawa.*

Grenville.

SIR,—The apple crop in this section will not be more that 30 per cent. of a full crop in fall and early winter varieties, and Canada Red and Talman Sweet, about 40 per cent. The blossom was fairly large, considering the abundant crop of last year, but the cold weather of the first week in June and the frost of June 2nd, injured the young apples that were just forming, so that trees that were covered with bloom are carrying about half a crop of fruit, and orchards a few miles back from the river are carrying very little.

As predicted in my last report in the June issue, the fungus is unusually bad and tent caterpillars very numerous; some orchards are also suffering from the ravages of the case bearer and bud moth.

Strawberries are a fair average crop, but very late, only making their first appearance on the market, in small quantities, at this date, June 24th.

Plums are a failure, no fruit has set, even on fence corner varieties. Pears showed an abundant bloom, about half of the fruit set; very few grown here. Raspberries give promise of a large crop.

HAROLD JONES, *Maitland.*

Huron Co.

SIR,—Along the lake, a large crop of currants and gooseberries, strawberries, pears, cherries and plums. The first four of these will be a crop that may be placed at full; cherries and plums a good large crop, all that the trees can bear and give good samples.

Apples are set and will give nearly a half crop in fall varieties, over a half crop in Spy, and under a half in several other winter kinds. Of course this is only an estimate, as a great many will fall yet. The actual present outlook is large in many apple orchards. Personally, I am thinning out the fruit in both apples and pears, as I consider the crop too large for the trees.

A. MCD. ALLAN, *Goderich.*

MR. W. E. SHERRINGTON, of Walkerton, writes that apple scab appeared in Bruce County about the middle of June. The fruit crop is otherwise very promising — particularly pears, plums and cherries. Japan plums are doing well so far, especially the Burbank and Abundance.

Open Letters.

Windsor Cherry.

SIR,—Young Windsor Cherry trees made a good growth last summer, but this spring there are very few leaves; the only buds that seem to be in good condition, that is, are sending out full-sized leaves, are those at the end of the growth of '95, and the second terminal bud on the growth of '96. The buds seem to open out at the proper time, but contained nothing. Some of them are now sending out very small leaves, but no fruit-buds. Lutovka and Minnesota Ostheim are in the same condition. I enclose you a sample bud. What is the matter? Thermometer fell to 20° below last winter, and was reported 24° below—the coldest known for 30 years. The wood of young trees of Spaulding, Burbank, Bradshaw, Genii and many other plums, is uninjured, except perhaps a loss of an inch.

D. J. STEWART,
Aitken's Ferry, P.E.I.

New Fruits.

SIR,—Seeing in the June number of THE HORTICULTURIST, in "New Fruit," by E. Morden, a rather severe discrimination against Russian Apricots, I wish the writer of said article could visit my orchard this season before Apricots are ripe. I think we could convince him that they are come to stay. There are several trees of different varieties as heavy loaded as the trees can carry, and I cannot find a curculio mark on any of them. The trees are more hardy than Peach, having borne some fruit even in the past two years, when Plums failed here. One of the trees measures 2 feet 6 inches across the trunk.

Japan Plums, too, come in for a share; one thing, they have an advantage over *Prunus domestica*, in being entirely free from black-knot.

S. HUNTER.
Hawthorn Place, Scotland, Ont.

A Long Keeping Apple.

SIR,—I have a young seedling apple tree that bore heavily last year. I put a peck of the fruit in a barrel of Russets, and when I sold the Russets, I found the others were still sound. So I put them away again and they are nearly sound at the present date, June 19th. The quality is not very high, but the apple is a wonderful keeper, and the tree is very productive.

W. G. WATSON, *Dixie, Ont.*

Price of Grapes.

SIR,—Grapes here look fine and promise a fairly good crop. All grape growers should combine, who have an acre or more of vineyard, and sell no grapes for less than 1½ cent per lb. All grapes unsold I am willing to take at that price, and make into wine. There is a large wine cellar here, with many empty tanks, so I can make it up with little expense.

I will send a sample of my last year's wine to any person interested.

D GRUENBECK, *Tilsonburgh.*

SWEET PEA WINDOW SCREEN.

THE sweet pea is suggested by a writer in the Ladies' Home Journal, for a screen against the ugliness visible from many back windows.

Given a long, narrow box for this purpose, with a simple trellis work of ordinary wire or twine, well pulverized and enriched earth, with a small addition of sand and a moderate amount of sunshine—sweet pea vines being easily scorched—and a pretty window, a fragrant room, and plenty of blossoms for cutting may be confidently counted on, says the authority quoted, and an accompanying illustration verifies the statement. Following are additional notes gleaned from the same source:

A peculiarity of sweet peas is that the higher they are trained the more profusely they will bloom, and if all fading blossoms are removed before they can go to seed, a constant succession of bloom is secured.

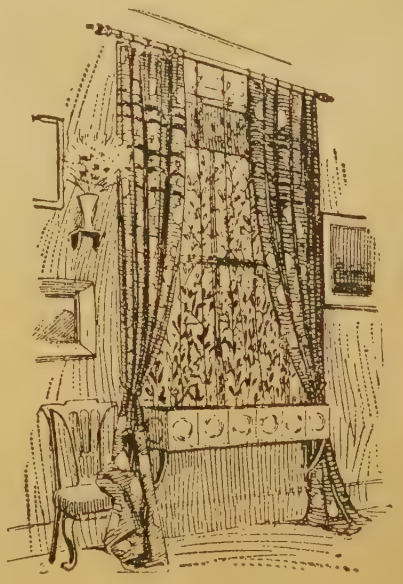

FIG. 1161.—SWEET PEA WINDOW SCREEN.

VIEW NEAR FONTHILL, ONT.

THE
CANADIAN HORTICULTURIST.
VOL. XX. 1897. No. 8.

STONY CREEK AND FONTHILL FRUIT GARDENS.

NOT a very poetical, or even appropriate name is Stony Creek for a naturally beautiful section where fruit gardens abound and the scenery is most picturesque. We would humbly suggest a change to some more euphonious and appropriate name, if the owners of land in that section ever expect a boom in landed property Having an hour to spare, while waiting for the Buffalo train, we climbed the mountain and secured some fine views of the pretty country below. In one direction lay Stony Creek, with its power house for the H. G. & B. electric road, and its beautiful orchards, reaching away to the shore of Lake Ontario ; and in another a distant view of Burlington Bay, Burlington Beach and Burlington Heights, and near at hand the famous battle field of 1812, where a few Canadian Militiamen routed a camp of American soldiers who fled to Niagara, leaving behind camp-kettles ammunition, and many other articles now treasured by the antiquary as relics of that war.

The bridge at the right in Fig. 1162 marks a ravine which is the entrance to Stony Creek Park, eight acres in extent, now being improved by the Davis Bros. In it is a beautiful fall, which, though small in width, yet in height is said to rival Niagara. Fruit land here is very valuable, especially since the H. G. & B. trolly has been built. For instance a nice orchard of 23 acres to the right of the bridge, planted to peach and fruit trees with house and barn, is held at $5,500, and generally speaking fruit land is worth from $150 to $300 per acre.

From Stony Creek and Winona, the T. H. & B. creeps up the mountain, showing below the most charming views of orchards and gardens of peaches, plums, pears, apples, grapes and small fruits, such as cannot fail to attract the attention of the great travelling public to the advantage of this section for that department of agriculture.

The country from Winona to Fenwick is uninteresting, but the drive of four miles from Fenwick to Fonthill reveals acres of as good garden land as can be

FIG. 1162.—FONTHILL FRUIT GARDEN.

found anywhere, which only needs better shipping privileges to be ranked as first-class fruit land. Even as it is, with the G. T. R. six miles distant, and the T. H. & B. four, large acreages of peach orchards and small fruits have been planted, and give excellent returns, for there is no finer peach soil in Canada.

The country about Fonthill is rolling and near by is the highest point of the Niagara Peninsula, an elevation whence at times lakes Erie and Ontario are both discernible.

Our frontispiece shows a view from near Fonthill, looking north east, with Mr. E. Morris, the nurseryman, in the

foreground, and just below some of his nursery stock, while in the mid-distance Thorold and to the left St. Catharines is barely distinguishable.

A visit to Fonthill would be incomplete, if it did not include the Fonthill Nurseries, the most extensive in the Dominion, covering in all, about 700 acres

tain ash, in the middle background a fine hedge of Spiræa Van Houtti, and on the right one of Norway Spruce, beautifully trained, and in the rear a row of Pyramidal Arbor Vitæ, which is adapted to become a beautiful ornamental hedge. On the left is seen a variegated Dogwood, Paul's Double-flowering Thorn, and a Scotch

FIG. 1163.—PÆONIES, NORWAY SPRUCE HEDGES AND OFFICES, FROM PHOTO. BY MISS MABEL F. WOOLVERTON.

of ground. Desiring to see the rose plantation, then in their full glory, we visited these nurseries, and were very curteously treated by the proprietors, Mr. W. E. Wellington & Mr. E. Morris, who furnished carriages for carrying the writer and his assistant, with accompanying cameras, through their grounds.

The entrance (Fig. 1164) is very pretty, having on the right a fine Weeping Mountain pine. Driving in past the greenhouses and offices, we passed some large gardens of beautiful pœonies of all colors. A snap from this point looking back toward the entrance with a Norway Spruce hedge near at hand, was too good to miss (Fig. 1163). In addition to the trees before mentioned it shows a fine Cut-leaved Weeping birch near the office.

From here we were driven through

FIG. 1164.—VIEW OF ENTRANCE TO GROUNDS.

FIG. 1165.—VIEW OF BLOCK OF PEACH TREES WITH GANG OF HOERS AT WORK.

FIG. 1166.—ANNIE DE DIESBACH.

great farms of nursery stock, and were shown a single block containing 300,000 beautiful apple trees of salable size, another of 50,000 plum trees, another of 100,000 fine peach trees and another of 60,000 cherry trees, etc., all in the most excellent state of cultivation. One view of a block of 40,000 peach trees with gang of hoers at work is show in Fig. 1165.

Must our Canadian fruit growers plant and grow all these trees and place all the fruit they bear in the market to compete with that now being grown? we asked, naturally feeling anxious lest the markets will soon be more than glutted with fruit. "Yes, said the owner, they must plant them." In one respect we were compelled to acknowledge that the tree agent was a public benefactor. By his persistent efforts, and gifted tongue, many meritorious varieties of trees are at once introduced into general cultivation, that otherwise would not have been known for decades of years.

The rose block was a charming sight; 50,000 plants in one block, of all the most desirable hardy varieties! Prominent among the white varieties we noted Madame Plantier, Coquette des Blanches, Coquette des Alps, and Margaret Dickson, the latter especially beautiful, with flesh-colored tint in centre.

Of red varieties, we noticed Francoise Levet, cherry rose of medium size, of Paul Verdier style, one of the hardiest; La Reine, very hardy, somewhat fragrant, glossy-rose; Paul Neyron, the largest of all roses, many of the blooms measuring seven inches in diameter; and Annie de Diesbach (Fig 1166) one of very best pink. Three varieties of red roses much resemble each other, viz.: General Washington, Charles Lefebre and Sir Garnet Wolseley.

Of dark red varieties of course Baron de Bonstetten takes the lead, but Jean Liabaud, a seedling of it, is a lovely rose and competes with it for the first place.

FIG. 1177.—AUGUSTA MIE.

Augusta Mie is another fine glossy pink rose, raised from la Reine ; a little tender for an H. P. At Fonthill it succeeds admirably.

One of the most interesting roses in the collection is the Crimson Rambler (Fig. 1178) which is an astonishing bloomer ; though not large, nor very double, the clusters of bright crimson flowers are very large and the growth very vigorous, making it quite a good climber. It is said that as many as three hundred blooms have been counted in one cluster !

We have mentioned just a few of the many charming varieties that came under our notice, of many of which we have taken excellent photographs, but lest we weary our readers with this article, we reserve detailed description until some future issue of this journal. The day's excursion was a delightful one, and we reached Grimsby via St. Catharines and G. T. R., after an absence of just twelve hours.

Fig. 1178.—Crimson Rambler.

BEAUTIFYING THE STREETS.

IN one of the suburbs of Dayton, Ohio, an association has been formed for the purpose of beautifying the streets, the unimproved property and the public grounds by proper planting, by promoting a general interest in gardening, and by systematic efforts to abate nuisances and to control the location of houses so far as possible. Lectures are given, with views, to show how house surroundings can be made attractive, and the newspaper reports say that this part of Dayton has shown marked improvement in its appearance. Prizes are offered by the association for the best example of planting in individual grounds, together with the condition of the roadways, gutters, curbs, sidewalks and general appearance of the houses. Prizes are also offered to boys for the best vegetable gardens, as well as prizes open to boys and girls for the best kept back yards, whether planted with flowers, shrubbery, climbers or grass. Photographs are to be taken of the examined gardens, with particular sections and decorations of the streets entered in competition, and a neat pamphlet has been pnblished containing views of the prize-winning grounds last year, and also embodying good advice about trees, shrubs and climbers, with the methods of planting and caring for them.—Garden and Forest.

THE ONTARIO APPLE, AND ITS ORIGINATOR.

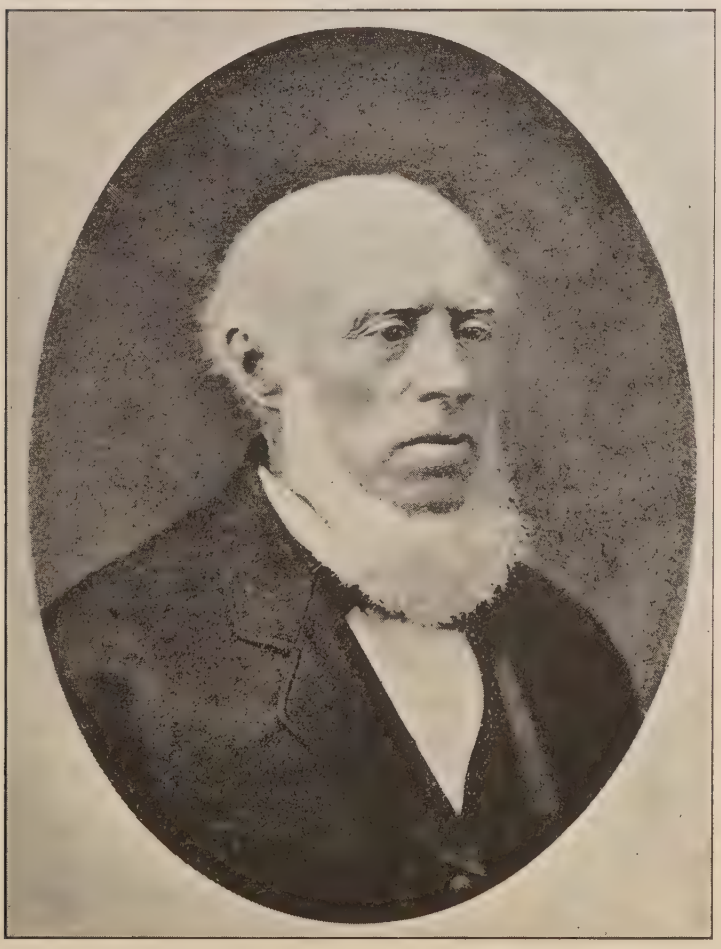

FIG. 1179—MR. CHARLES ARNOLD, PARIS, ONT.

WE have already referred so often to the Ontario apple, that it may seem superfluous for us to again bring it before our readers. We have only one excuse, and that is, the desire of placing side by side in this Journal, both the apple and its originator.

More than a decade of years has now elapsed since Mr. Charles Arnold, of Paris, was among us, the honored director for division No. 9. For over fifty years he had conducted the Paris Nurseries, but his attention was by no means confined to narrow commercial lines, indeed a very large part of his time was given to originating new varieties, a work often unappreciated by the world, though often of the greatest service to it. According to Mr. Beadle the first efforts of Mr. Arnold in the line of hybridizing were made with the grape; crosses were

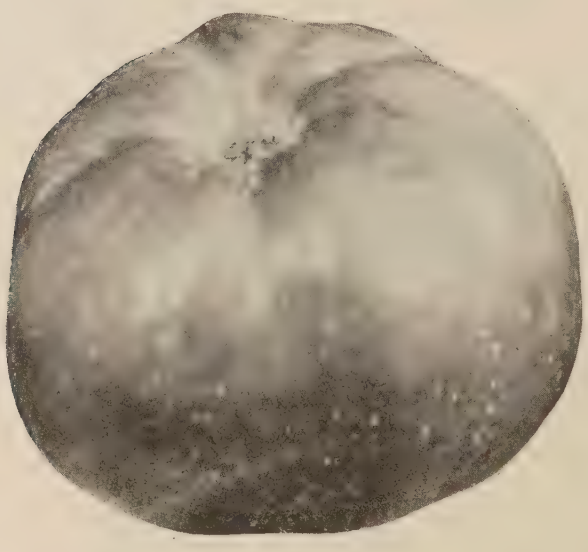

FIG. 1180.—THE ONTARIO APPLE.

made between the Vinifera of Europe and the Æstivalis of this Continent, producing among others the Othello, Cornucopia, Autuchon, Brant and Canada, varieties much esteemed in France, but not so well adapted to this climate. He also experimented with raspberries, peas and other plants, but his crosses of the apple have been of more value to us than any other of the fruits; one of which, the Ontario, is already counted as one of the first-class Canadian commercial varieties for export purposes. Its merits are its early and and abundant bearing, the even size of the fruit, and its excellent quality, all of which might be expected from its parentage, viz.: Wagener, crossed with Spy. At our Bay of Quinte Station it has been tested for many years, and found to give abundant crops of fine fruit, but in the vicinity of Peterboro, and sections north of that point, it can scarcely be said to be hardy.

The tree is moderately vigorous, and an early bearer; and the fruit is large, often much larger than our engraving which is from a photograph of an average sized specimen.

For a more detailed description of this apple, we refer our readers to the report of the Experiment Stations of Ontario, just published by the Department of Agriculture at Toronto.

This report is unique, in as much as it is undertaking a work never before attempted by any experiment station, viz.: An illustrated work describing in a permanent form the fruits of the country. When completed this work will be of the greatest value to Canadian fruit growers

FIG. 1181.—SECTION OF ONTARIO APPLE.

CONVENIENT ORCHARD LADDERS.

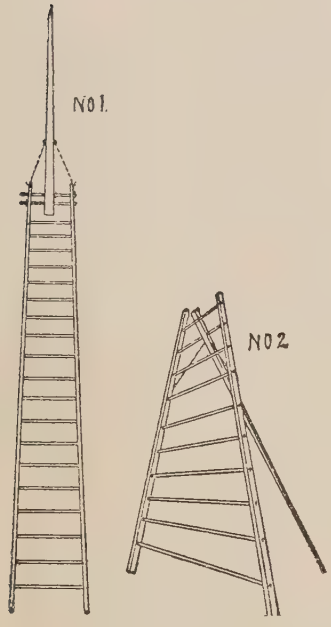

FIG. 1182.

A SUPPLY of convenient ladders is absolutely essential to the orchardist; and these should be provided in good time before the hurry of fruit season. For apple and cherry picking, the ordinary ladder of cedar poles with oak or hickory rounds is best. At Maplehurst we use various lengths, from 18 to 30 feet, but the most generally useful are those about twenty feet in length. The longer ones are needed for old apple trees, but need two persons to raise them, and must be handled with great care, or the ends will be soon broken off. Any carpenter will make these ladders for about 10 cents a foot. For peaches, plums, and dwarf pears the ordinary ladder is not very suitable unless provided with a tongue as shown in Fig. 1182 (1) as described by Farm and Home.

The dotted lines represent guards or fenders. Their use is to prevent the tree limbs from catching on the end of the ladder. They are made of the stiffest wire. The upper ends are stapled to the tongue and the lower ends terminate in hooks which fasten into staples driven into the side pieces on the outside. The uppermost two rounds are close together and are made to slip out. Two corresponding holes in the lower end of the tongue receive these rounds when put in place. Pins of wire with bent heads are put through the moveable rounds and one of the side pieces, also through the second round and tongue, to hold all in place. The tongue can be taken out when the ladder is required for common use.

No. 2 is made on the same principle, but is shorter. In this the lowest round

FIG. 1183.

is five feet long, and the tongue is reversed. It rests on the under side of the topmost round, the second round passing through the second hole. The tongue is then drawn back until it cramps between the rounds, and it is fastened there by hooking the wires to staples driven into the side pieces at the proper distance down. The wires then acts as braces. When standing, the ladder forms a tripod. A piece of wood usually has to be fastened to the side of the tongue where it touches the top round, to give sufficient spread. If these ladders do not stand too slanting, a twig the size of one's finger projecting from a limb is sufficient to hold them in place. The short ladder will not stand well if over eight feet long. It is used to pick fruit from the lower branches, and the tongue can be extended or folded, as most convenient. It is a good step-ladder for any purpose.

Fig. 1183 shows a ladder, somewhat similar to the last in use in gathering dwarf pears; such a ladder is most convenient in such a case for often the young growth toward the top would not support an ordinary ladder.

For very low trees a stout step-ladder such as is shown in Fig. 1184 is useful, but a little heavy for carrying about. For small gardens where a first-class ladder is wanted, and expense is not the first consideration, we commend Harvey's Portable Step-ladder, illustrated on page 97. If the land is at all level, and free from bushes, it can be wheeled about from tree to tree with perfect ease. We have not figured the ordinary step-ladder, because it is for sale everywhere. The great consideration with most of us is to have the step-ladders light enough for carrying about the orchard, and strong enough to endure a great deal of abuse

Fig. 1184.—Step Ladder.

GOOD OUTDOOR WHITEWASH.

The following recipe for whitewashing was at one time sent out by the light-house board of the treasury department. It has been found, by experience, to do well on wood, brick and stone, and to give almost as good satisfaction as oil paint, being made cheaper.

Slake one half bushel unslaked lime with boiling water, keeping it covered during the process. Strain it, and add a peck of salt, dissolving in warm water; three pounds ground rice put in boiling water, and boiled to a thin paste; one-half pound powdered Spanish whiting, and a pound of clear glue, dissolved in warm water; mix these well together, and let the mixture stand for several days. Keep the wash thus prepared in a kettle of portable furnace, and, when used, put it on as hot as possible, with painters' or whitewash brushes.—N. Y. Farmer.

Fig. 1185.—W. E. Wellington.

W. E. WELLINGTON, ESQ.

WE are glad to be able to give place in this number to a picture of our President for the current year, viz.: Mr. W. E. Wellington, of Toronto. This gentlemen has been long associated with us on our Board of Directors, and has already been energetic in forwarding the best interests of Canadian horticulture. We are much indebted to him for the excellent provision for fruit growers now afforded at the Industrial Fair. For an extended sketch of Mr. W. E. Wellington, we refer our readers to Volume XV of this journal, p. 11.

GOOSEBERRIES—ARE THEY PROFITABLE?

GOOSEBERRIES are not very profitable in Canada. Perhaps if we could grow the immense English berries, they would bring us some money, but they mildew so badly we cannot, except in several favored sections with northern exposure. Large berries bring a good price, but small ones are poor sale. On the 25th of June we shipped 20 eight-quart baskets of small gooseberries to Toronto, and they were sold at from 10c. to 12c. a basket; just about enough to pay for the picking! They yield well, the bushes giving about fifteen quarts each, but what advantage is that, when the selling price does not cover the expenses?

FIG. 1186.—THE DOWNING.

Some years ago we made a beginning in mildew-proof kinds with Houghton's Seedling, a variety originating in Massachusetts, but too small for profit. Then came Downing and Smith's Improved, both seedlings of Houghton, the latter raised in Vermont, the former in New York State. The Downing (Fig. 1186) is the best of these American varieties and very productive, but still not big enough to be grown very extensively in a commercial way for profit.

FIG.—1187. THE PEARL.

Another variety, the Pearl, is now being pushed upon the fruit growers' attention by both American and Canadian nurserymen, and sold at a comparatively high price. This berry, like the Downing, is mildew proof and exceedingly productive. But is it any larger than it is when heavily loaded, and is it big enough to bring a paying price in the markets? We wait the reply of our experimenters.

In this connection, the following extract from Bulletin 114 N. Y. Experiment Station will be of interest to our readers.

For marketing green the European varieties are to be preferred, as they reach salable size somewhat earlier than do the native varieties, and this usually means a somewhat better price. During the season of 1896 the prices per quart ranged from 10 cents to 3 cents, the better prices being given for the early marketed green fruit and for the extra large ripe fruit.

In quality the best American sorts are superior to the best foreign sorts, as they have a much thinner skin and more delicate flavor; but fruit preserving establishments seem to prefer the European varieties, probably because the jam made from them corresponds more closely to the favorably known product put up by English firms.

Though so much larger-fruited, the foreign varieties are not as productive as the natives, nor have they proven quite so hardy. Large growers report yields from the standard American varieties of from half a ton to as high as four tons per acre

Industry is one of the best of the European varieties, as it is a strong grower and one of the most productive. Its fruit is medium to large in size, pear shaped or roundish oblong, smooth or nearly so, dark red, mild sub-acid or sweet, of very good flavor, and an excellent fruit for marketing green. Like the other foreign varieties it often suffers quite seriously from mildew, unless preventive treatment is given. *Crown Bob* is another excellent variety for the early market, though it is not as strong a grower nor as productive as *Industry*. Its fruit resembles *Industry* in color, is smaller, nearly round, almost sweet and of good quality. *Lancashire Lad* is a vigorous variety and suffers but slightly from mildew. Its fruit is medium to large in size, nearly round, almost wine colored, slightly hairy, sub-acid or nearly sweet and of good quality. *Wellington Glory* has proven most productive of the European varieties fruited at the Station for four years, and has usually escaped much injury from mildew, though it occasionally suffers severely. The fruit is of an attractive pale yellow, medium to large, oblong, smooth with slight bloom, sweet and good. *Dominion* is a new variety of promise, as it is vigorous and seems productive. So far it has not mildewed. The fruit is large, varying from round to oblong, pale, greenish white, nearly transparent and thin-skinned for a berry of foreign type. *Triumph*, while not as productive at the Station as *Wellington Glory*, seems one of the most desirable of the green or yellow fruited varieties. The bush is a strong grower and quite free from mildew, though occasionally showing a considerable amount of the disease.

For home use as well as for market gooseberries should be given shallow, clean cultivation, and should not be allowed to struggle along as best they may in a fight for food with grass and weeds and shrubs. If planted in fairly fertile, well-drained soil of almost any sort, given a show against weeds and other enemies, and fertilized well after they begin to bear, they will return good crops of fine flavored fruit

PRUNING.—Two systems of pruning are used, one producing the tree form, which is common in England and is adapted to well cultivated gardens; the other, the bush form, Figs. 1188 and 1189, which is preferable for general culture, as its productive life may be indefinitely extended.

FIG. 1188.—INDUSTRY.
(Bush form, before pruning; 9 years planted.)

Grown in tree form the plants produce no suckers; if accidentally broken off, they are destroyed; and when the bushes

FIG. 1189.—The same after pruning.

become unprofitable, as they are liable to do after producing five or six good crops, no restoration is possible. To grow gooseberries in this form, it is merely necessary to rub off all buds or eyes from the below-ground part of the cutting. Only one main stem will be formed, and the top may be easily shaped and preserved by cutting back the new shoots each year to about three buds, and removing weak or superfluous branches.

With the bush form, new, vigorous canes are constantly springing from below ground, and stand ready to take the place of any worn-out stalk and to maintain the productiveness of the parent bush. Five or six canes, including the new ones, should be left in each bush, or even more if the variety be one with slender canes. Little pruning will be necessary for two or three years after planting, except to clip off the ends of the shoots to favor development of the fruit spurs along the cane. The upper buds frequently grow so strongly if this is not done, that the lower ones fail to start, and the fruit is nearly all borne toward the end of the canes, and its weight forces them to the ground. Besides this "heading in" weak or broken, or too vigorous branches, old canes and those too close to the ground, should be removed. The centre of the bushes need not be kept open to the sunlight, as the fruit may become scalded if not shaded by foliage, but free circulation of air underneath the branches should be promoted.

DISEASES.—The worst disease attacking the native gooseberry is *leaf spot*, a parasitic disease due to a fungus which causes spotting of the leaves and consequent weakness and defoliation. It can probably be successfully treated by spraying once with Bordeaux mixture, before the fruit begins to grow, and resuming the applications in midsummer, after the fruit has been picked and is not in danger of spotting by the spray.

Mildew affects most seriously the European gooseberries and their seedlings, and has almost prevented the cultivation of the species in America.

It can be largely prevented by planting on well-drained soil, in high locations, where good air drainage will promote rapid evaporation of dews and rains, and where circulation is not hindered by tight fences, windbreaks, groves or buildings; by *shallow* cultivation, to keep the soil light and dry and free from weeds; by pruning, to give the air currents free access; and by spraying with fungicides. The best fungicide for this purpose is probably potassium sulphide, as Bordeaux mixture is liable to spot the fruit and decrease its market value. Spray the bushes thoroughly as soon as the buds begin to open, and every ten days thereafter until the fruit is nearly ready to market, using a solution of 1 pound of the potassium sulphide in 32 gallons of water. If heavy rains immediately follow the spraying, repeat the application, and each time use great care that all parts of the foliage are reached by the spray. If leaf-eating insects are present, the poisons which are fatal to them may be added to the spray and a double protection secured.

CONCLUSIONS.—If the grower wishes a hardy, productive, mildew-resistant gooseberry, with thin-skinned fruit of good quality and delicate flavor, let him select one of the American varieties, such as Downing, Houghton or Pale Red. If he is prepared to fight the mildew, and wishes to grow for market a large early berry, or late fruit of striking size and uncommon color, the European sorts like Industry, Crown Bob or Wellington Glory are to be preferred. Whatever varieties may be selected, plant the bushes on good soil, give them plenty of room and rich food, keep down the grass and weeds by shallow cultivation, prune out the useless wood, let in the light and air, destroy the worms and prevent the mildew.

GOOD POINTS ABOUT PEACHES.

THE essential elements of success with peaches are: 1, seed from natural pits, free from any taint of disease, with equal care in getting buds; 2, healthy trees, planted on high, dry land, where no peach trees have stood before, with moderate, clean culture up to July, yearly (not afterward) so as to secure only well ripened wood in autumn; 3, the yearly application of some perfect manure potash included. These things are all important.

There are a few other points which I desire to emphasize: First, the practice of moderation in the early years of a peach orchard, to be followed after maturity by very liberal management. Second, never let an orchard bear a breaking crop; a moderate crop of large peaches is more valuable than a very heavy crop of small peaches; besides it is far less exhausting. Again, the practice of cutting back the branches so as to reduce the number of blossoms helps the matter of thinning and promotes a growth of more new, vigorous wood to bear fruit the succeeding year.

Last spring I made an application of 600 lbs. per acre of fish and potash, to each ton consisting of 1400 lbs. of ground fish and 600 lbs. of potash. My leading object was to plant between the peach rows strawberries for plants and fruiting, but the effect upon the eight-year-old peach orchard was excellent. The fruit upon these trees was perhaps as fine as I ever had, and the growth and promise next year are the best. This was only a part of the orchard, and I seriously regretted that it had not been over it all. From this experience and what I have observed elsewhere, I have no hesitation in recommending some quick-acting nitrogenous fertilizer in connection with the other elements in a mature or declining peach orchard. Another practice popular in Michigan and undoubtedly beneficial, is the early sowing of rye in August to serve as a winter mulch, and in spring to be turned under as a manure. With our occasional warm spells in winter, the use of some means to act as a mulch, and thus maintain a uniform condition of temperature in the soil, cannot be over-rated. I saw in Tennessee some peach orchards mulched with straw for the same purpose, certainly a reasonable practice. — P. M. Augur, in Farm and Home.

THE FAMEUSE APPLE.

THE Fruit Growers' Association of Quebec met at Howick, on the 27th of January. There were present a large number of prominent members, among them the Hon. S. Fisher, R. J. Shepherd, R. Brodie, J. M. Fisk, J. C. Chapais, and Messrs. Craig and Shutt, of Ottawa.

Mr. Shepherd read a paper on the apple crop of the Province of Quebec, in which he made the following references to the Fameuse apple. The quality of the Fameuse was excellent last season, where any attempt was made to spray the trees. Perhaps more Fameuse were exported and sold in Great Britain, last season, than ever before. Sold under the name of "Fameuse," too, they brought better and higher prices than the Western "Snows." When Fameuse were picked and barrelled early, and shipped immediately, they arrived in fair condition, and netted fairly good prices in London, during the greatest glut ever known in that market. London seems to be the best market for No. 1 Fameuse, if packed with care, either in barrels or cases. Of course I prefer the case package for my special trade, as the fruit arrives on the other side in much better condition. Just as the Newtown Pippin commands fancy prices, even in such years of plenty as last (prices reaching 25s to 28s. per barrel), for no other reason than because the Newtown Pippin is a fashionable apple with the fashionable people of London; so is it possible, if "La Fameuse" (which, in the opinion of those who know both apples well, equals, if it does not surpass, in its season, the former), if put on the London market in its best condition, will command equally good prices when it too becomes a "fashionable" apple. I believe there is a large trade to be worked up by exporting our Quebec Fameuse to London, and that in time,

FIG. 1190.—FAMEUSE APPLE.
(From a pencil drawing by Harold Jones, Maitland.)

as the taste for it increases in that metropolis of the world, so will the demand and the prices increase. Never has "La Fameuse" been exported in sufficiently good condition, in large quantity, to encourage the demand for it in England, but the past season, I believe, is only the beginning of a large trade. A few years ago it was supposed that the day of Fameuse was over, or that it would not pay to continue to plant orchards of that variety, and owners of old orchards were disposed to cut down their trees; but since the advent of the spray pump, a new lease of life has been given to the old trees, and no one now need fear to plant out new orchards.

Since California fruit has reached our markets to compete with our summer and fall apples, it does not seem necessary to set out large orchards of trees bearing apples only to compete at low prices with this foreign fruit. A few years ago our Red Astrachans, Yellow Transparent, Strawberry, Peach and Duchess apples were the most profitable apples to grow in this Province; but that has all been changed since our markets have been glutted with California fruit. Whether we shall be able to ship these varieties in cold storage advantageously, I am not prepared to say.

Let me say a word about the necessity of more carefully handling our best apples, both in picking and packing. The system practised in some districts of the picker ascending the ladder with a bag slung across his shoulders, in which to gather the apples he picks, is one not to be recommended. I believe the first bruise the apple receives at the time of picking, almost imperceptible at the time, is the worst; and from that moment the fruit rapidly begins to decay. There is no receptacle better adapted to gather apples in than the ordinary round peck basket, lined inside with canvas, to prevent bruising. Apples of La Fameuse type should be handled like eggs. It pays to do it. Where it is practicable also, I think it better to pack the barrels or boxes in the orchard. Head up the barrels then or the next day. I have no faith in the cry that

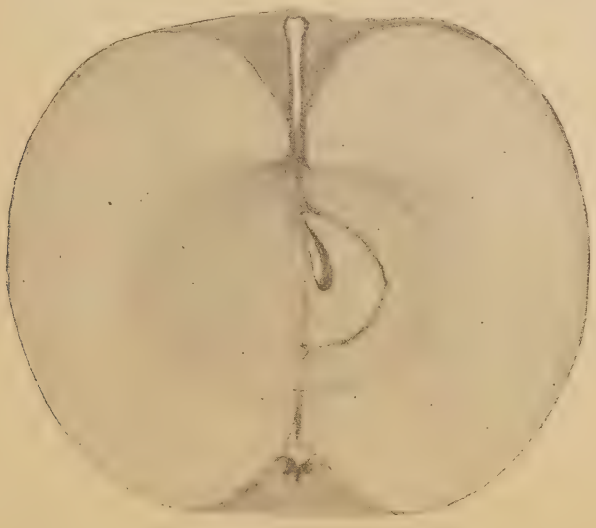

FIG. 1191.—FAMEUSE APPLE.

apples must be allowed to sweat. I never saw any necessity whatever for that. The less handling you give the fruit the better. It is a mistake to keep our delicate apples in unheaded barrels (standing on end, of course), in a barn or shed, exposed to all the variable changes of the atmosphere, sometimes for weeks before packing them in barrels for market. The fruit mellows and ripens much more quickly, and when we begin to pack up the fruit for market we find that the bottom half of the barrel contains many bruised specimens caused entirely by this mode of handling the fruit. The best apples should always go into new barrels. On no account should No. 1 fruit be put into old flour barrels. It is a great error and short-sighted policy.

HOW TO GROW THE ENGLISH GOOSEBERRY.

THE English gooseberry is unfortunately subject to mildew in this country, and Americans know little or nothing of this very excellent fruit. Martin Benson, in the March number of *Vick's Magazine*, tells how he raises it successfully without mildew, and has large crops of the finest fruit.

The soil should be rich and deep, and, if possible, a slope facing the north should be chosen. It should also be sufficiently removed from any tree to prevent the roots robbing the plants. The soil should be plowed as deeply as possible, and it is also of great advantage to subsoil it. This will give a deep bed of loose soil, which will retain moisture much better and keep cooler than when plowed as ordinarily. The plants should be set six feet apart each way. After or before the plants are set I prepare posts each eight or ten feet long of some lasting timber; these are set in the ground two feet deep, and ten or twelve feet apart each way, among the gooseberry bushes; pieces of timber are nailed from post to post, and on these are nailed slats or laths enough to make a half shade. This will furnish all the protection needed from the hot sun, and at the same time permit of a free circulation of air. After this is done I mulch the entire surface of the ground to the depth of a foot with straw or other litter, placing it up close around the plants. This mulch must be placed on thick enough to keep down all weed growth, and each fall an additional amount should be placed over the old. If the soil is rich to begin with, and the mulching is attended to properly, it will be years before the plants require fertilizing, but if needed it can easily be applied by using coarse, strawy manure for the mulching material. The soil, if mulched as directed, will always remain cool and moist, and fruit of the greatest excellence, and in the greatest quantities, will be produced.

PEACHES are reported a short crop except in California, Arkansas, Washington and Oregon, and Southern Ontario. Apples are less than half a crop except in the far west. Grapes will be a fair crop throughout the United States, and very good in Ontario.

THE PEARL GOOSEBERRY grows a little larger than our engraving under favorable conditions. Mr. Herbert Kerman sends us some samples on the 26 July measuring nearly ⅞ of an inch in diameter.

GRAPES THAT ARE FINE BUT HARD TO GROW.

GEORGE. W. CAMPBELL, BEFORE MICHIGAN STATE HORTICULTURAL SOCIETY.

ALL admit that the fine grapes are the most desirable, and the practical enquiry is, Why are they more difficult to grow; and how can these difficulties be overcome? The principal reasons why the finer variety of grapes are harder to grow are, want of hardiness in severe winters, and a disposition to mildew of the foliage in summer. Some of the finer varieties have but one of these difficulties to contend with; others have both. In localities where mildew does not prevail to an injurious extent, lack of hardiness in winter is so easily guarded against as to be practically of little consequence, in comparison with the gain of having fine grapes.

Pruning the vines in Autumn, as soon as practicable after the falling of the leaves, and laying the canes upon the ground, affords ample protection to quite tender varieties where there is regular snow fall, and the vines are covered with snow during the coldest weather. In localities where cold is extreme, and without snow, it is necessary to cover with a little earth, and this I have found sufficient for the finer hybrid and tender varieties.

It is generally true that the finest quality in grapes is accompanied with a more delicate constitution and sometimes, but not always, with slender growth. Many of Roger's Hybrid Grapes, which are fine in quality, are very strong and vigorous in growth; not specially inclined to mildew, and, though not hardy under extraordinary cold, will endure a temperature a little below zero, without much injury. I think they will all bear as much cold unimpaired as our cultivated peach trees.

Among the most popular of Roger's Hybrids, I will name No. 3, or Massasoit, as the earliest and one of the best. Wilder, Lindley, Barry, Herbert, Salem, and Agawam, are all, when grown under favorable circumstances, finer in quality than the somewhat hardier sorts, Hartford, Champion, Telegraph, Worden or Concord. By giving a little winter protection all the above named hybrid varieties can be grown with nearly as much certainty as the Concord, and its seedlings.

The Delaware Grape, which is still among the finest, only fails where the foliage is injured by mildew. In favored locations, where the temperature is equitable and the leaves remain healthy, the wood ripens perfectly, and the Delaware endures the severest winters without protection and without injury. It is also singularly exempt from rot, generally escaping from this malady when others are destroyed. Two varieties may also be named which are really fine, and which only require winter protection to be grown as easily, and in most places as certainly, as the Concord. These are Brighton and Jefferson. I have grown these varieties since their first introduction; and with me they are vigorous in growth, healthy in foliage, very productive, bearing large and handsome clusters, and of the best quality.

Wherever there is a market that appreciates and will pay for fine grapes I believe it will be found much more profitable to grow these fine varieties, with the little additional trouble and expense of giving winter protection.

The other difficulty which renders some of the fine varieties hard to grow,

the mildew, is not so easily overcome; but I have found that sulphur and quicklime in equal parts, blown upon the foliage of the Delaware, early in the season, upon the very first indications of mildew, has always arrested and prevented it spreading to any serious extent; and vines so treated have ripened their fruit and wood well, even in unfavorable seasons.

Another difficulty with the Delaware may be mentioned—its tendency to overbear. It will often set double the grapes it can bring to maturity, and, unless they are promptly thinned out, the present crop will be lost and the vine enfeebled for many years to come.

A few other fine varieties among the hybrids of more recent introduction may be mentioned, which are partially tender in winter, and also subject to mildew in unfavorable seasons; and to grow these successfully not only winter protection, but remedies for mildew of the foliage would have to be applied.

SUCCESS WITH STRAWBERRIES.

DO not allow plants to set beyond the limit of six inches in width in the rows. Preserve the balance of the four feet for the thorough pulverizing and cultivation of the soil.

Cover the plants thinly, late in Autumn, with coarse litter of almost any description, the most easily obtained where you live. Allow the mulching to remain on the row during the fruiting season in order to protect the fruit from having the sand beaten upon it during heavy rains. But do not neglect to cultivate the vacant spaces between the rows as thoroughly the second season as you do the first. Allow the plants to spread to about nine inches in width the second year. Treat them otherwise precisely the same as during the first season, but in Autumn give the rows a liberal dressing of fine stable manure; and as soon as the second crop is harvested plow the plants under, preparatory for some other crop the next season.

There is perhaps no practice so fatal to successful strawberry-growing as the one almost universally adopted of allowing the ground to remain uncultivated until after the fruit is gathered. This is done to avoid the sanding of the fruit, but it must be borne in mind that under this practice, with the droughts which occur two years in five, during the ripening of the fruit, the crop is practically lost where otherwise, by the retention of moisture in the soil, through a thorough system of pulverizing and cultivation, a full crop of the best fruit could have been obtained. In connection with this we observe the most important fact of all, that during the prevailing droughts the short crop causes the market to rule high, so that under this system of thorough cultivation we are double rewarded for the extra labor expended in the production of a full crop of first-class fruit.

BLACK CURRANTS.

WE use them for the table, with sugar the same as red ones, but for this purpose they need to be thoroughly ripe; we make jam of them and can them for winter. Jelly and cordial, which are highly esteemed for medical purposes, can also be made from them. The jelly is thought to be particularly beneficial in cases of sore throat, and the cordial in summer complaints.

It has always seemed strange to me that more attention has not been paid to them, for the cultivation is attended with very little trouble and we have always found a ready sale for them in market. In fact, with us, the demand has always been greater than the supply and the price obtained a little better than that paid for red ones.

The bushes are easily propagated from cuttings, which can be planted either in the fall or in the Spring. With proper cultivation they make rapid growth and bear quite abundantly the second season after planting. They are long lived, some on our premises being more than twelve years old to my certain knowledge, and they still bear fruit in great profusion. They are not troubled by the currant worm. Some think that by planting red currant bushes among the black ones the former escape the ravages of the currant worm, but I am not quite prepared to vouch for that. So far as I know, they are not troubled by any blight or disease.

Currants are so much more easily picked than strawberries or raspberries that they find favor in my sight. The stooping position necessary in picking strawberries is very tiresome, and one comes out of the raspberry season with hands scratched and full of thorns and garments as badly rent as if they had sojourned forty years in the wilderness.

To those who are raising small fruits for market, I would say try some black currants. If you have any English customers you are sure of a market for them —Vick's Magazine.

ADVICE ABOUT STAWBERRIES.

1. Strawberries do well on almost any well drained soil, which is free from frost, reasonably fertile, and not Infested with white grubs.

2. There is little danger of making the soil too rich, but there is a possibility of injuring the plants with commercial fertilizers, if placed to closely about the roots, and with coarse manure.

3. Commercial fertilizers seem to have no effect on white grubs, nor does manure, but the latter stimulates the plants, so as to repair the damage.

4. The best fertilizers are well rotted manure, bone meal and wood ashes.

5. The best method of preparing the soil is to plow in the fall, mulch with manure, and fit the ground in the Spring with cultivator and harrow.

6. The best time to set strawberry plants is in early Spring. When plants are to be set in the fall they should be especially grown for the purpose, either in frames or in pots.

7. For matted rows the plants should be set 18 inches by four feet apart, and for hills, one foot by three.

8. In hill culture the runners are all removed, and for the best results in matted rows a part should be cut off, or some of the plants dug out.

9. Generally, it is better to keep a bed only one season, but if kept longer the best treatment is burning soon after fruiting.

10. Winter protection should be given by mulching, and the best material is swamp hay.—Ohio Exp't Station Report

Flower Garden and Lawn.

Fig. 1192.—View in Miss Hodges' Greenhouse, Orillia.

COLOR AND FORM IN THE FLOWER GARDEN.

Now that woman is at front in so many lines, it need cause no surprise to meet a lady florist, and one, too, who makes her chosen vocation a success. Such a one is Miss M. Hodges, of Orillia, who writes the accompanying article, but not like her male competitors, she does not readily consent to furnishing her photograph to accompany her article. She has, however, sent us a pretty view in her greenhouse in spring time, the fine collection of tulips, hyacinths, ferns, etc., proving her to be a successful florist.

With reference to flowering plants for summer bedding I shall speak briefly, as we need color to brighten up the wide stretches of green of our lawns and the rich foliage of our tree, which should always be the most prominent features of our gardens, and our first consideration. When arranged with a fair amount of taste, the scarlet geraniums, tricolors, various foliaged geraniums, coluses, lobelias, petunias, and calliopsis, present an appearance that is at once pleasing to the eye and within the bounds of correct artistic taste. It is of

the great meaningless mass of color that we have to complain, and the cutting up of our lawns into stars, diamonds, and half moons, circles and other figures, and crowding them with a motley mass of inharmonious colors.

We, who have limited space, must content ourselves with fewer varieties, choosing only the prettiest colors, and placing them with proper care where each will look its best, and give the best results and effects. To do this one must select with an idea of combination as well as individual beauty. The Mosaic, or carpet bedding, which gives one the impression that a few Turkish rugs have been left lying out on the lawn, used to seem a necessary adjunct of a wealthy man's lawn, but is, every year, being relegated further to the background. Groups of shrubbery, following the lines of nature as nearly as possible, interspersed with, in unexpected nooks, masses of color in the way of either perennials or solid beds of one, or not more than two, colors in annuals, always first choosing appropriate surroundings and the most effective background for each color. For clumps of color in perennials, or that can be used as such, I might here mention the double flowering helianthus (or sunflower), dahlia, delphinium, canna, almost the entire family of lilies, phloxes, campanulas, etc. In annuals; verbenas, astors (an endless family of beautiful color and forms), zinnias, stocks, petunias, antirrhinums. For a border at the foot of a hedge: sweet allyssum, blue and white lobelia, or pansies. Pansies in a mass row of about two feet wide, are very effective lined with indistinct colors and markings.

Supposing we have a series of beds alongside one of the principal walks to fill, and instead of following the orthodox plan of crowding them with bedders of the ordinary type, we arrange every second or third with plants remarkable for the beauty of their leafage, and the others with flowering plants held in the highest favor, the change would be complete and for the better. The masses of color would be broken up, a pleasing variety afforded, and an effect not wanting in richness produced, and each year this could be changed or varied.

Indeed, the arrangements that suggest themselves appear to be well-nigh innumerable, and those who determine to renounce their allegiance to the present out-of-date system may be assured that their progression will be well repaid, not only by the pleasure they themselves will experience, but by the appreciation they will receive from people of the highest taste.

M. B. Hodge,

Orillia.

Mulch the Rose Beds.—A mulch on rose beds is quite beneficial during hot weather, not only preventing the too rapid evaporation of moisture from the soil, but also keeping the roots cool. The most convenient material for this purpose is to be found in clippings from the lawn, this being a covering that has frequently proved most satisfactory. When it is possible to do so, the rose beds should be freely watered during dry weather, for by this means quite a sprinkling of flowers may be had from the June roses (hybrid perpetuals) later in the season, besides greatly improving both quality and quantity of flowers on the so-called ever-blooming sorts.

THE ROSE SEASON, 1897.

THE rose season for 1897 is past, and we might almost say that for bloom and magnificent display it has been a jubilee season for that queen of flowers. Never before had I such a gorgeous display and for many days my garden was a source of general attraction to lovers of the beautiful. But the season was nevertheless disappointing in that it was so short, owing to the extreme hot weather which set in with the first blooming, and continued till every bud was either forced into bloom or withered before opening.

Every year seems to bring a new experience to the rose grower, and every season fresh favorites. Roses that I have given only second or third places heretofore have easily taken first rank this season, and some of my former favorites have done only fairly well this year. The character of the season of course has much to do with this variation.

Among the darker sorts the Jean Liabaud has easily led all the others, Baron de Bonstetten coming second, Fisher Holmes third. Prince Camille was not at all satisfactory. Of the crimson varieties the Jack still leads, and though not as compact a rose as one would like it is not likely to be surpassed for years to come. Another magnificent rose of a lighter shade is the Ulrich Brunner which among its class has easily taken first rank this season. Among the still lighter shades the Jules Margottin has quite outstripped the Magna Charta this season, but both have been beaten by the Francois Michelon, Baron Prevost, and Duke of Edinburgh. Going a shade still lighter what can surpass Madame Gabriel Luizet for beauty of form and profuse blooming? It is truly a charming rose, and should be first choice in its class in

FIG. 1193.—VIEW IN MR. RACE'S GARDEN, MITCHELL.

FIG. 1194.—VIEW IN ROSE GARDEN.

every collection. Coming to the whites, all others for outdoor growing must take a second place to Madame Plantier, and Merveille de Lyon. I cannot close, however, without saying a word for climbing Jules Margottin and climbing Victor Verdier. The former, cut back to three feet, forms the centre of Fig. 1193, having at the time it was taken over 40 full blooms. I may, say hovever, that those views give but a faint idea of the mass of bloom or brilliant display they are supposed to represent.

On the extreme left of Fig. 1194 in the

FIG. 1195.—VIEW OF SIDE OF HOUSE.

distance, is a bush of Madame Plantier, with nearly one hundred full blooms on it, though it does not show any number very distinctly. Fig. 1195, with the side-house view, contains a double row, 20 feet long, comprising fifty varieties, all splendidly in bloom. The photo. does not do the display anything like justice.

Just a word in conclusion about treatment. The first thing that attracted the attention of every visitor was the richness of my foliage. This I attribute largely to a strong application of unleached hardwood ashes early in the season. Besides supplying potash the ashes help to retain moisture in the soil after the dry season sets in. I dig in a coat of manure during August or September and leave all the growth thus encouraged till the following spring.

I used no insecticide this season except my finger and thumb until the 28th of June when the leaf slug got so bad that I was compelled to give a spraying of Paris green water.

T. H. RACE.

Mitchell.

OUR NATIVE CYPRIPEDIUMS.

FIG. 1196.—C. SPECTABILE.

C. PUBESCENS not *spectabile*, was the orchid shown on page 269, in illustration of Mr. R. B. Whyte's article on "Our Native Cypripediums." We now give the engraving of C. spectabile, which should have appeared in that connection, though reduced in size fully one half. We highly value Mr. Whyte's communication, and hope he will continue as a constant contributor to our floral department.

IN GROWING FILBERTS never grow the plant shrublike, but grub up every shoot but one and train it in the form of a tree. All young shoots should be kept grubbed up until the tree begins bearing, after which young shoots will cease coming up. Filberts can be planted 10 ft. apart in the rows and rows should be 100 to 150 ft. apart for satisfactory results. The intermediate space can be planted to many varieties of grain, vegetables, strawberries or anything that suits the views of the owner. Filberts require an abundance of water and should be irrigated often in an irrigated country: in localities where the natural rainfall is depended upon, they should be planted where the soil is moist and damp.—Farm and Home.

The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

WOOLVERTON STRAWBERRY.—Mr. J. B. Bruce, Vernon, B.C., thinks there must be a mistake in calling the Woolverton a late strawberry. The following is a record of his varieties with dates of ripening: Michel, June 1st; Wilson, June 3rd; Woolverton, June 3rd; Clyde, June 7th.

ALL BERRY PICKING is best done by the quart. Indeed, with the present low prices prevailing we must figure closely if we make any profit, and a uniform price ought to be paid by growers.

We have been paying 1 cent a quart for picking gooseberries, currants, strawberries and blackberries; 1 to 2 for cherries, according to variety and crop; 1½ for raspberries, except for first and last pickings, for which we pay 2 cents. Is this about the scale of prices adopted by our readers?

"CHRYSANTHEMUMS OF 1896," is the subject of Cornell Bulletin 136, which contains several full sized photogravures of choice blooms, *e. g.*: Oriental Glory, Good Gracious, Miss Magee, Rosy Imperative, and Lenawee. As good blooms as are shown, it is stated, may be grown in the house window; and to succeed well, amateurs should grow plants with from three to six large characteristic flowers.

CANADA'S GREAT VICTORIAN-ERA EXPOSITION AND INDUSTRIAL FAIR.—We have received a copy of the Prize List for the great Victorian-Era Exposition and Industrial Fair, which is to be held at Toronto, from the 30th August to the 11th September next. It promises to exceed in magnitude and attractiveness all previous exhibitions held in Canada. Among the many special

features to be provided will be a duplicate of the principal features of the great Jubilee procession in London, England, on the 22nd of June, all the uniforms, costumes and properties being brought from England for the purpose at an enormous cost. Anyone desiring a copy of the Prize List can procure one by dropping a post-card to the Manager, Mr. H. J. Hill, Toronto.

CURRANTS have been a very dull sale this season in Ontario, in some cases only 2 and 3 cents a quart. Indeed, some of our near markets will not take them at all, a most discouraging state of affairs when the crop is so good.

Fortunately some of the more distant markets, in large cities, are more satisfactory, perhaps because of the demand for currant jelly among the wholesale confectioners. Buffalo reports 4 and 5 cents a quart, and a Commission house in Chicago quotes $2.50 per bushel, or, about 8 cents per quart. We have shipped two or three hundred baskets to Chicago to test the matter, and will report the result. There is one thing in our favor, and that is the refrigerator cars, by which we can transport fruit in car-lots at little more than freight rates.

THE SAN JOSE SCALE ON FRUIT.—Our British Columbia friends are wide awake to the danger from the importation of fruit infested with the San Jose scale. More than a year ago we received a copy of the Act providing against the importation of fruits and fruit trees affected with insects or fungi, and the provisions are being rigidly enforced. So far the orchards in their fertile valleys are free from Codling moth, and every care is taken to prevent its introduction. About two years ago a carload of fruit from this province was seized and destroyed, because affected with Codling moth; and now the same energetic measures are being employed to protect the country from San Jose scale. The following is a clipping from *The Vancouver World* of Sat., 3rd of July:—

Inspector Cunningham, whose vigilance in protecting fruit-growers and consumers from the introduction of diseased fruit is worthy of all praise, has seized and condemned a consignment of California apples, which arrived by the last California steamer. The apples are badly infected with the deadly San Jose scab. The samples which a *World* representative has inspected show the fruit to be not only unfit for human food, but constitutes a serious danger to our own orchards. The samples can be seen in *The World* office.

The Board of Horticulture is doing good work in protecting our people from imposition. Mr. Cunningham believes that this shipment of apples, which comes consigned to a prominent firm, was condemned in San Francisco, and sent here as a last resort. When the consignor has paid the expenses incidental to this venture he will think twice before again taking the risk of dumping diseased fruit on British Columbia markets, for no chances of infection will be taken in permitting infected fruit to be landed at any quarantine port in the Province. A member of the Board of Horticulture leaves for the interior next week whose duty it will be to inspect quarantine stations and effect such reforms in the administration of the regulations of the Board of Horticulture as may be deemed necessary. American shippers will do well to make a note of this incident and of the determination of the Board of Horticulture to guard our fruit-growing interests. The board will fight to the end any attempt made to make this Province a dumping ground for bad fruit.

SEEDLING CHERRY.—Mr. John Gormley, of Pickering, sends samples of a wonderfully firm cherry, that would be of great value for distant shipments. The form and color is about that of the Wragg, or English Morello, but the flavor is very superior, being like that of a Bigarreau, which it also resembles in texture of flesh. It appears to be superior to the Bigarreau in its resistance of decay, these samples keeping a week in perfect condition. We would like to hear more of this variety.

THE PEACH CROP in the Niagara district as far as Hamilton is very heavy, many growers are for the first time thinning their trees to prevent their breaking down with their load of fruit. Advices from Chicago indicate that the western crop is very light and that the prices of peaches in that market will be very high. This will afford a fair exchange of shipments, for in previous years Michigan peaches have flooded our Canadian markets.

RETURNS FROM CHICAGO for currants were not very satisfactory owing to the high express charges of $1.50 per 100 lbs. The first shipment of currants sold for about 6½ cents a quart, leaving a net return of about 3 cents; and the second sold at about 4c., leaving a net return of about 1½ cents. A duty of 2 cents a pound has since been put on currants by the U. S., which will shut out our shipments. Possibly we can export them in cold storage to Great Britain.

THE LEAF CURL has been fairly well prevented in the Michigan peach orchards on the trees which were sprayed with Bordeaux mixture both before and after the buds opened.

CHILD'S RUBY AND WILDER CURRANTS have come to hand from B. F. Clossom, Highland Creek. In size of berry both are about equal to the Cherry, but the bunches of both, like those of Fay's are larger. Of the two, Wilder appears to be the more compact in bunch. Mr. Clossom says the bushes are strong, upright and vigorous, not sprawling like Fay.

THE WRAGG AND THE ENGLISH MORELLO are ripening about the same time (July 20th) and show very little distinction. The latter is a trifle the larger as grown at "Maplehurst," but which is the most productive must be decided later.

OF THE SOUR OR KENTISH CHERRIES, the most satisfactory thus far with us is the large Montmorency. The old Pie cherry, or late Kentish, has long been grown in Canada, but is subject to curculio and black knot. In flavor it is very acid, as is also the Montmorency Ordinaire, which much resembles it; but the large Montmorency is a mild tart, a larger size, and a good bearer.

MR. W. M. ORR, Provincial Superintendent of Spraying, called on the 23rd July. He is engaged under the Department of Agriculture, inspecting orchards for San José Scale, and brought specimens of plums and apples from an orchard near the border of New York State which were literally swarming with San José Scale. They clustered in great numbers about the stalk, and caused a reddish hue, which would puzzle the uninitiated. The trees were alive with the terrible pest, which had been imported on a lot of 800 trees from a nursery in New Jersey, and fifty trees of this lot were in the orchard referred to. Inspector Orr states that the owners of infected orchards demands unreasonable compensation for the destruction of infested trees. Our government needs to take the most decided and determined action in this matter, or our business of fruit growing

will be ruined. Possibly it will be necessary to pass a law compelling the destruction of infested trees, and that with little or no compensation, for of what value is a tree infested with San José Scale? The labor and expense of treatment would be as much as a tree is worth.

Mr. Alex. McNeill, of Windsor, writes his grape crop never looked better. He has just put in 8000 tile, and built 25 miles of trellis, besides preparing to build a barn to replace the one destroyed by the cyclone last year. He is off now to Bay View, Michigan, for two weeks' holidays.

Not all Profit.—Mr. McNeill is inclined to criticise Mr. E. D. Smith's article on "Fruit Growing." He writes: "I am a little surprised that no one has written any comment on the papers by our friend Mr. E. D. Smith. It appears to me that there is another side to the question that should be presented. My first impulse when I had finished reading the papers was to sit down and show where he was likely to lead your readers very much astray. But twelve or fourteen hours a day of manual labor on my part has saved Mr. Smith's reputation as far as I am concerned, and it is just possible that a few hundred more deluded victims will buy nursery stock at a good round figure in the fond hope that they will at once 'rake in the shekels,' without any of the precautions or conditions necessary in other professions. I am in hopes of having a word to say on this subject yet."

The Fruit Prospects have changed very decidedly since we last reported. The apples have fallen so badly that the crop will be very small indeed, excepting a few varieties. The Northern Spy promises a better crop than any other, being well loaded with fine clear fruit. Unfortunately the scab has appeared this season on many varieties; we have noticed it particularly on Early Harvest, Red Astrachan, Cranberry Pippin, and Greening. The Bartlett pear is clean but the Flemish Beauty and Louise are very badly affected.

White Holland.—This is the finest white currant we have seen. The bush was sent us for testing but we have lost the record of the originator. The berries are about equal to those of the Cherry in size, and more productive. The bunches are very long, many of them measuring five inches in length. The flavor is mild subacid, and the season from July 12 to 25th or about the same as the Cherry.

Farming, our excellent contemporary, which deals with the interests of the farming community in the same lines that we do those of the fruit growers, is to be commended for the excellent article which has appeard in the July number on the San José Scale. This deserves perusal by all fruit growers. We quote a sentence or two. "We wish particularly to impress upon the minds of fruit growers that as soon as this insect is found to occur in an orchard the most strenuous measures must be taken to stamp it out. No half way steps will suffice. Fruit growers must be mutually helpful in an emergency like this." We regret that they are not as mutually helpful as we could wish. We know of a fruit grower who refused $250 cash, from the Ontario Inspector of San José Scale, for the privilege of destroying about 100 infested trees in his orchard. If this is the way our growers act, we must have legislation empowering the inspector to destroy the trees without compensation to the owner.

Question Drawer.

Sage.

958. Sir,—I would be pleased if some reader would give in this Journal some hints on growing sage for market.

J. B. Bruce, *Vernon, B.C.*

Insect on Currants and Gooseberries.

959. Sir, — Being much interested in Horticulture and Fruit Growing on a small scale, I would be glad to learn from what cause it is, and what it is, that has so baffled my efforts this season in attempting to grow currants and gooseberries. This season I was expecting some returns for past labor. I have grown small fruits for several years, but never with such a discouraging feature as this season. The bushes were well enriched, well mulched and were all that could be desired; all leafed out and showed healthy habits, were covered with blossom and looked very promising, when a tiny insect made its appearance about the size of a pin's nob, in color brown and black, and literally infested the new growth and attacked the fruit by the myriads when it was just setting, sapping the vitality of the bushes, causing the leaves to turn brown and in some instance to kill the bushes. I tried a weak solution of Paris green, which I have always used with success for the ravages of the currant worm, but in this invasion profited *nil*; the black currant bushes were attacked perhaps worse than any. The result is that, from some forty-five bushes, there will not be more than a handful of fruit. This pest on small fruits is new in my experience, and that while apple trees growing on the same lot have this season been free of any ravages of insects, which is the first time I remember the like. Would you kindly inform me how I may prevent a repetition of the evil, whether it is a sort of blight, or what?

Rev. W. A. Adcock,
East Angus, Que.

Snyder Blackberry Blights.

960. Sir, — Some months ago I asked the Horticulturist why my blackberries dry up, when they ought to grow. I enclose twig, cut 13th July. It sets fruit, but seems to wither all at once. Last year the whole crop was affected, now only a small part. The soil is moist and fertile.

T. M. Grover, *Norwood.*

Reply by Mr. John Craig, Experimental Farm, Ottawa.

In Eastern Ontario and throughout the Province of Quebec, blackberries frequently set fruit which they fail to mature. This failure is due mainly to three causes:

(1) Winter injury; (2) dry weather; (3) diseases. The specimens received show a certain amount of injury by winter at the tips. In order that fruit may be matured, blackberris canes must be supplied and must carry a reasonable amount of foliage to the ends of the tips, otherwise the fruit-bearing spurs have nothing to support them. The tips received lack in this respect. This is a prolific cause of failure in the colder portions of Ontario and Quebec. Again, on cultivated ground extremely hot weather during ripening time, frequently shortens the blackberry, as it does the strawberry and raspberry crop, and the extraordinary high thermometer of the last three weeks was sufficient to cause blackberries to shrivel prematurely. Blackberries are also affected by the mycelial form of orange rust (*gloeosporium*). This disease occasionally does not make its presence apparent by the orange rust form on leaves, but is at the same time quite injurious. I believe as a general rule that blackberries may be grown with greater success in Western Ontario if a system of mulching is practiced instead of that of clean cultivation.

Pie Cherries.

961. Sir,—I mail you to-day sample of cherries, kindly let me know true name. What are the best kinds to plant in Essex Co., one for early, one medium, and one late, that is hardy and will yield a good crop every year, and if the three you will mention will fertilize each other if planted in blocks, or would they require other kinds planted between? Is there an early kind that will yield as well as Early Richmond and ripen a week or 10 days earlier? By sending me particulars you will oblige.

G. Findlay, *Walkerville, Ont.*

The sample sent is apparently the large fruited Montmorency. This variety is not so tart as the Early Richmond, or the Late Kentish, larger, and the tree is more productive. However, none of the Kentish can be called very productive, not averaging more than half the quantity yielded by the Hearts or Bigarreaus. The three hardiest and most regularly productive pie cherries are Early Richmond, Large Montmorency and English Morello. These three ripen in succession and would cover the season fairly well.

The Early Purple is fully ten days and more earlier than Richmond, but is of an entirely different class. No doubt it would succeed in Essex.

Open Letters.

A Fruit Grower's Retrospect.

SIR,—The amazing advancements in the methods and results in Canadian fruit growing to-day, appear to us as one of the most prevalent evidences of real permanent advancement in all that goes to make life so desirable in the history of any country. But very few of our younger people to-day, can have any proper conception of the early struggles of their forefathers in their efforts to bring about what is now seen and enjoyed. For purposes of salutary retrospect, allow me to take rapid glances backward in the history of this Western Ontario, and view the times that are now very far off? In 1847 much of this great country was very new and much not inhabited. Forests of great extent abounded everywhere and the scattered inhabitants were struggling with them to get an opening to let in the life-giving sunlight. It was then that the germs of what we now see were first cast into this rich and fertile soil, and began to show the beginning of fruitful life. From that time to this the process has been going on until all the wonders and the beauties of to-day stand out fully before our eyes. At that time I was aged 14 years, having been brought 2 years before, a mere strippling from the old shores across the Atlantic. Then the attempts made in Agriculture and more especially in Horticulture, were unmistakably primitive, but they had the germs of promise in them. At that time there was no James Dougall's Nurseries at Windsor; no Arkona Nurseries at that place; no Saunders' Test Grounds at London; No Arnold's Nurseries at Paris; no W. H. Holton, at Hamilton, and I very much doubt that there were any Dr. Beadle's Nurseries at St. Catharines, or Geo. Leslie's Nurseries at Toronto. All the nice things that were wanted in the line of fruit trees, ornamental shrubs or plants had to be brought direct from the United States, and many sad disappointments we suffered thereby. But we have outlived them and now smile at what then caused us such vexation.

The patient industry and growing intelligence of the people, the agreeable, buoyant and stimulating climate, the extreme virgin richness and fertility of the native soil contributed to the best results and filled their barns with plenty, and their hearts with confident satisfaction, and their lives with purest enjoyment. Towns and cities were few and market communication was difficult. Everybody grow their own as far as possible, and so fruit and vegetables and whatever pertained to the rudest gardening was of little value and not esteemed as property. But as the country and its people grew, which they did apace, this state of things was soon changed and a new era began to dawn upon us. Cities and towns of great vigor and forceful palpitating life began to be established here and there over the land, on sure foundation. The whole country soon felt the force of this onward movement. Good roads were studied and prapared and well maintained. Communication with the rising centres was so made easy and pleasant, and a fine profitable intercourse was soon established and so has come the state of things we see around us to day.

But the full development of what we now have, has mostly been the steady onward work of the past 25 years. The position of fruit growing in 1872 was in no sense that of a developed industry, at least in Western Ontario. At that time fruit was not considered property and not subject to the protection of property. People considered that fruit could be taken wherever it was found accessible and the owner's fences could be torn down and the fruit plants pulled up by the roots before his eyes or otherwise. Many a time my wife and I have stood the most of the night to try and protect our fruit products. All this, and much more, was largely our personal experience in our incipient stages of progress as Canadian fruit frowers. I am now so deeply thankful to be able to say, that I have lived to see all this sort of thing forever past, nothing of it is seen or felt now. Our people, even to the very youngest of them, know better, and the fruit grower is not only recognized as an honorable citizen, but he is protected and even profoundly respected. Thanks for the growiug intelligence of our people for this state of progress and for what we have attained. In this sense we most sincerely prize a kind and *fostering protection.*

In that year, 1872, "The Arkona Home Nurseries," were established on a very favorable plot of soil well adapted to the purpose. This was the first thing of the kind in all that part of the country and was recognized, and rejoiced in as a great public benefit to the country. About that time or shortly after others were established in different parts of the country and the time for home-grown trees and plants now joyfully come Such vexing inconvenience had been suffered by the people from American agencies disposing of their surplus stock. So when Canadian nurseries became so well established as to supply our own markets with home-grown stock it was considered a great step in advance, or a movement onwards. From that time to the present our progress has been rapid and definite and the fruit products of this region are now assuming immense proportions. Great quantities of new and choice fruit are now annually grown for home use and for the foreign market, and wherever they go they command a cautious and respectful consideration.

B. GOTT.

Strathroy, Ont.

New Hybrid Cannas.

SIR,—You will remember that at our annual meeting at Kingston, I claimed to have effected crosses last season similar to those producing the new orchid-flowered Cannas—Italia, Austria and others. It is with pleasure that I advise you, that although only a fraction of the seed referred to has bloomed under glass, several similar forms have already appeared—producing the first hybrids of this type of Canadian origin.

These crosses were largely effected on a seedling of my own originating, and like the foreign varieties, present all the characteristics of true hybrids, aside from distinct change in the form of the flower; the plant variation from this seedling was more diverse than that from similar crosses made on my large collection of foreign hybrids.

At the same meeting I also referred to two seedlings of unique form, the inferior petal being abnormally developed, and much longer and larger than those usually classed as superior. Prof. Saunders showed his interest at the time, in this variation, by several critical queries. Since then the leading Canna specialists of the United States have advised me that this novel variation has not yet come under their notice. I hope to refer to these and other items of interest at our Waterloo meeting this fall.

H. H. GROFF, *Simcoe, Ont.*

Fruit Prospects in Quebec.

SIR,—This year is going to be a poor one for fruit, with the exception of currants and gooseberries, which are a heavy crop. The apple trees blossomed heavily, but with a succession of heavy rains, late frosts and continued cold weather, the fruit has not set well, and for all the spraying with Bordeaux every week since the buds began to open, the apples and trees have a measly-looking appearance. The past winter has been severe on fruit trees and plants, on account of not having our usual supply of snow to protect the roots, and the the heavy frost at Easter destroyed a great many trees. I did not lose any trees that were in grass, but of those that were cultivated I lost about forty trees. The only plums we have bearing are a few of the North-West varieties, the fruit-buds of the other varieties being tender. The Burbank Japan and Willard varieties have wintered through as well as such varieties as Lombard and Pond's Seedling.

The fruit growers have lost a good friend in the death of Mr. J. R. Clogg, wholesale fruit and commission merchant, Montreal. He was a straight, honest man in business, and in his transactions he was the farmers' friend every time. His death is a blow to the country and to the many friends who knew him.

R. BRODIE,
Orchard Bank, Coteau St. Pierre, Que.

Gooseberries in Simcoe Co.

SIR,—The wet spring has been unfavorable for the setting of gooseberries. Champion shows a large crop, Pearl and Downing a fair crop, and the rest only a few. I mulched heavily with the clearing-up of the sheep yard. I have always thought that the heat and drought favored the mildew, but this year, before we had a hot day, while it was raining hard every day and almost cold enough for frost, my English berries were white with mildew. Fungicides washed off as soon as applied. I do not like mulching, because the weeds come through in spite of all I can do. I intend to burn it all and give thorough cultivation instead. Possibly I shall mulch as far as I can get well-rotted manure with which to do it. My English berries are an awful mess, even the foliage is rotten, as well as the fruit.

In reply to the enquiry regarding English gooseberries, it seems to be a question of soil and locality. Lancashire Lad is a complete failure here. It does not grow enough wood to live, and I have had it about six years. Green Chisel is very promising so far. Success seems to be an American, and does not mildew; the fruit is small.

S. SPILLETT, *Nantyr, Ont.*

New Gooseberries.

SIR,—I have a gooseberry, without name, which I consider the most valuable of any in the garden. Samples sent you by post. It was given to me by Dr. Harkness, Lancaster, who had it from the garden of the late John McLennan (By-the-Lake), where it had been in cultivation for at least 20 years previous. The history of the plant is not to be had, but it is presumed to have been imported from England. It is a very vigorous grower, free from mildew, large berry, good flavor, and great cropper.

The intense heat of the past few days has cooked a considerable proportion of the gooseberry crop, but unfortunately the fruit is ruined in the operation.

Have any of your readers tried the new spineless gooseberries sent out by Joosten, New York, imported from France, last year, and what is thought of them?

C. W. YOUNG, *Cornwall, Ont.*

Fruit Prospects at Whitby.

SIR,—Since last writing you, we have had very warm weather, and in consequence the apple crop has dropped off, so that at present writing I think there will not be more than half of the apples in this district there was

last year. The plum crop, however, is extra, but pears suffered like the apples, only in a less extent.

Small fruits are very abundant and promise a big yield. I visited Lindsay, Peterboro' and Port Hope district last week and found the fruit crop about the same as here, only plums are not so plentiful.

Nearly all farm crops are looking splendid and promise large yields. A few gentle showers would not come amiss just round here.

R. L. HUGGARD, *Whitby, Ont.*

Heating Small Conservatories.

SIR, — Kindly allow me space for a few words in reply to Prof. Taft's article in the June number, pp. 249-50.

The questions of Mr. C. E. German, of Strathroy, respecting his conservatory, were intelligently asked and his description of the premises well given—with one exception—and the reply given by Prof. Taft, of the Michigan Agricultural College, to the paragraph on ventilation was quite satisfactory—to me, at least—but his answers to the three questions on heating were far otherwise, hence my communication in May number.

I am much pleased to note that the learned Professor has now coreected that part of his reply to Que. *(a)*, respecting the temperature. But that part respecting the length of pipe in the fire-box is made very much worse. He says, "It is customary in estimating the fire surface required in a heater, to take one-eighth of the radiating surface to be supplied, and I followed that rule." I am aware that this and many other such *rules* are given for this purpose in different places; but when a sensible, practical man such as Mr. German appears to be—judging him by his questions—asks certain information, it seemed to me that it would be better for him, and probably hundred of others of your readers, to give practical information, rather than quote obsolete rules; hence my reason for writing paragraph (10), as seen in May number, page 179. And to show the absurdity of such a rule as quoted by the learned Professor, I would add that the fire surface of the furnace in that house is only one *forty-seventh* of the radiating surface supplied. And further, that no plant has been injured by frost either in the house where plants are kept in all the windows day and night all the winter through, or in the conservatory since its erection some years ago. And also, that the consumption of coal—and there is no other fuel used—has been less than five tons per annum.

Further on, the Professor says, "The working of pipes does depend on their length, as can readily be ascertained by comparing the circulation of a long run of small pipe with a short run, when both are but slightly above the level of the heater." No practical man will try such an experiment at his own expense.

In his last paragraph, the learned Professor says he "noticed several questionable statements" in the latter part of my article, and then adds, "but will only comment on one of them." Here it is: "In paragraph (8) he recommends 20 gallons of water for heating 1000 cubic feet." (This sentence is inaccurately quoted), and immediately adds ("which would be all right for a certain size of pipe and for a house of a certain shape.") Now Mr. German gave every necessary dimension of the house and said he would use two inch pipe. Will the gentleman say wherein my statement is "questionable"?

The relative efficiency of pipes, for heating purposes, of different diameters, is not relevant to this question; but should the learned Professor wish to discuss this branch of the subject, at some future time, I shall be pleased to "take a hand."

THOMAS BEALL.

Lindsay, July 1st, 1897.

The Black Currant, Success.

SIR,—Last year I wrote you about the Success Currant (Black) sent out by you several years ago, speaking as to its earliness and excellent quality. At present writing, July 3, the fruit of Success is almost ripe, more nearly so than White Grape, while the Reds are only beginning to turn, and the other Blacks, presumably Black Naples, are green and as hard as bullets. Success is, to my mind, the best black currant I ever saw, although Mr. Craig told me at Ottawa last summer that he had several other kinds that were very much like it. The early ripening is a valuable quality, and should made it most desirable for market growers. Insect pests of all kinds are very prevalent here this season. My plum trees are completely covered with aphis.

C. W. YOUNG,
Cornwall.

Fruit About Goderich.

SIR,—Since writing my last there seems to be a change, and not for the better, for fruit growers in this section. I find the few apples there are, are almost all dropping off, now about the size of hickory nuts, besides there seems to be a blight, the leaves curl up and turn black so it makes the trees look rather sickly, and some trees look like the fall of the year with the sear and yellow leaf. Plums also near half size turn yellow and drop. Peaches not much grown here but what there are have the leaf curl bad and some of them are falling. Pears a very good crop but some varieties very scabby, had not much time to spray as we have been very busy with mixed farming, and the season has been very favorably for weeds, that we have to keep the hoes going near all the time. Raspberries are a good crop. I think what Mr. Allen said in last month's HORTICULTURIST is not quite correct, as all I have enquired of say the apple crop is very light. Hay and grain good crops.

WALTER HICKS, *Goderich.*

HOME OF MR. CHARLES VAN DUZER.

THE
CANADIAN HORTICULTURIST.

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THE GRIMSBY HORTICULTURAL SOCIETY.

FIG. 1197—

Yours truly
John H. Grout

THE affiliated Society at Grimsby was formed in 1895, with Mr. J. H. Grout as president, and C. W. VanDuzer, secretary; and ever since the interest in its work and in its floral shows has been constantly increasing.

Mr. John H. Grout is one of the most prominent citizens of Grimsby; he is proprietor of the Grimsby Agricultural Works, and the Grimsby Basket Factory, but nevertheless takes a deep interest in floriculture. For two years he filled the position of president with credit to himself and to the Society, and then he resigned, believing it was for the best interests of the Society to have a frequent change in officers.

Mr. Charles VanDuzer was the first secretary, and faithfully discharged the duties of his position for two years also, working up the membership from 56 to 67, a good number for a village society. A successful fruit grower and one all his life engaged in the practical work of fruit growing, Mr. VanDuzer was eminently fitted to be the secretary of a society whose members are as much or more interested in fruit growing as in floriculture. His fruit farm is in a fine state of cultivation. He grows the finest Champion Quinces in this section, and his immense Blenheim Orange apples always command a high price. His Red Astracan orchard was last year loaded to

FIG. 1198.—MR. CHARLES VANDUZER, Ex-Secretary.

the ground with fine fruit, but this year it is almost barren. Among his other specialties are Bartlett pears, peaches and grapes, a share of which he proposes to furnish for the experimental export trade to Great Britain. In addition to his orchard, Mr. VanDuzer has opened up a business in fruit shipping, and may always be found at the G.T.R. station ready to pay a price for all kinds of fruits, in order to fill his orders.

Our frontispiece shows Mr. VanDuzer's home, near Grimsby Park, with tennis court and front yards. The large tree in front is the common locust *(Robinia pseudaacia)*, a favorite tree with the early settlers about Grimsby; the clipped trees in front are Norway Spruces, and the dense foliaged trees on the side are Horse Chestnuts, a tree that succeeds well in the Niagara district on high well drained soil. But the great charm of the yard is the beautifully kept hedges of Arbor Vitæ, which are a proof of the great desirability of this slow growing evergreen for making an ornamental hedge.

At the last Annual Meeting one of the lady vice-presidents was elected to the office of president, viz., Mrs. Edgar J. Palmer, the wife of Grimsby's leading merchant, who has lately retired from business. The daughter of a practical horticulturist herself, she takes a special interest in the Society, and frequently calls sociable little meetings of the directors at her own house. She also excels in her own garden in growing early vegetables, as well as with many of the choicer floral treasures. One bed in a side garden is most attractive in May with Crown Imperials, and again in July with white lilies *(L. Candidum)*. We were surprised at the heighth of the latter this season, many of the stalks standing six feet high, and showing from eight to ten blooms each.

FIG. 1199.—MR. E. H. READ, Secretary.

FIG. 1200.—VIEW OF A CORNER OF MRS. PALMER'S YARD.

The accompanying view shows a corner in Mrs Palmer's yard, with a fine hedge of Norway Spruce along one side of the lawn. This is kept closely pruned during the growing season, and is always in perfect trim.

The present Secretary is Mr. E. H. Read, whose father was formerly a manager in the Bank of Montreal—and also an officer at Fort Erie in 1837. Mr. Read has had a varied experience in banking and other business pursuits, but for the last six years has devoted himself to growing flowers, vegetables and fruit. He says that his little greenhouse has been one of the most encouraging departments of his work, and were he beginning horticultural pursuits again he would give more attention to the growing of flowering plants for sale, and less to fruits. We hope, however, for the sake of others as well as Mr. Read, that the last two years does not fairly indicate the profits of fruit growing, for many a fruit grower has not met his expenses, owing to the low prices prevailing.

This account of the Society would be incomplete if we did not mention the preparations under way for a Chrysanthemum Show in November. Every member was given six fine plants in the spring, and each one is now cultivating these plants with great care, hoping to be able to show the finest blooms in November.

FIG. 1201.—MRS. E. J. PALMER.

We have written this account of our Grimsby Horticultural Society, hoping that now we may expect to have similar accounts from some other sister societies and thus increase the interest of the members in this journal.

EARLY APPLES FOR MARKET.

FIG. 1202.—EARLY HARVEST.

THIS season, when apple scab is again breaking out in unusual virulence, we are reminded of the importance of growing only those varieties which are proof against this fungus. We want to know just what is the most profitable first early apple, for market. For many years the *Early Harvest* held this place, but for the last twenty years this variety has been worthless on account of scab. This year the trees of Early Harvest are loaded at Maplehurst, but there is not one perfect apple, not one that could be shipped, and scarcely one that even the children will pick up to eat, and they know that no other apple of its season equals it in quality. The season of the Early Harvest is usually about the first week in August, though in 1896 it ripened from 15th to 30th of July. The *Red Astracan* comes close after it, usually being fit to ship from the 10th to 20th; it is a beautiful apple, the prettiest of its season, valuable for market when not too abundant, often bringing from 20 to 40 cents a twelve qt. basket for a selected fancy grade. We usually put up the fancy grade in these baskets, rowing them in two deep, and three wide; the second grade, of smaller size, or less color, goes in barrels. But unfortunately the scab is attacking even the Red Astracan this season, and of one hundred trees, twenty-five years planted, there will be very few baskets fit for market. This is a sore disappointment this season, when they were needed for experimental export shipments.

The *Yellow Transparent* is proving the best variety of its season to resist the scab. Its season is about as early as the Early Harvest, but it hangs much longer on the trees, attaining more transparent whiteness as it hangs. In some instances we have seen samples still hanging about the end of August. It may not be profitable in competition with Astracan and Duchess, varieties of far greater beauty, but when it competes with the Early Harvest in the early part of August, the grower will find it so superior in appearance, uniformity and productiveness, that it will entirely re-

FIG. 1203.—RED ASTRACAN.

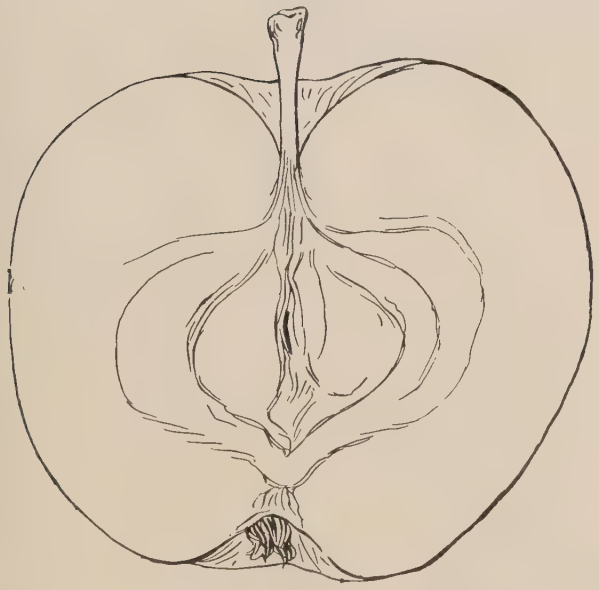

FIG. 1204.—EARLY HARVEST.

place that variety. For home uses, however, we would not omit the Harvest because of its superiority of flavor as a dessert apple. Mr. S. P. Morse, of Milton, has a seedling Early Harvest, almost equalling it in flavor, a little larger, less subject to scab, and otherwise much resembling it, which may prove desirable for home use instead of the original.

The Yellow Transparent was introduced from St. Petersburg, Russia, in 1870, and has been steadily gaining in favor among the fruit growers of the Northern States and Canada. Its hardiness, productiveness, resistance of scab, and early bearing, being its desirable qualities. Our Simcoe Experiment Station reports that it began bearing there four years after planting. Just now, (Aug. 5th) the Yellow Transparent is selling in Montreal market at 40 cents a twelve quart basket, but of course, the Early Harvest is an unusual failure, and that price is above what could be expected in average seasons.

This variety has been fully described in the last report of the Ontario Fruit Experiment Stations, which is sent free to the members of our Association.

FIG. 1205.—YELLOW TRANSPARENT.

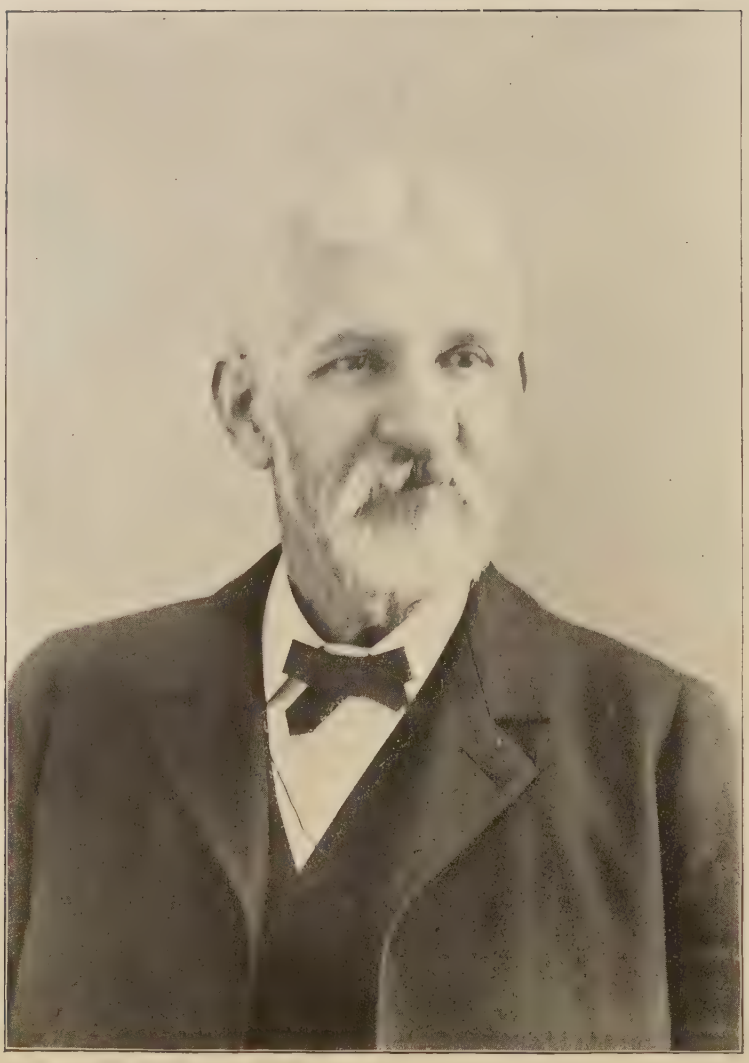

Fig. 1206.—John M. Denton.

JOHN M. DENTON.

WE are indebted to the Department of Agriculture, of Ontario, for the excellent engraving of our respected and honored friend, Mr. John M. Denton, of London, Ont, whose decease took place on the 24th of March.

From pure love of fruits and flowers, and of all departments of Horticultural Science, Mr. Denton was for years accustomed to attend the meetings of our Association, as well as that of the Entomological Society, and truly no face was more welcomed than his.

He was the son of a farmer in Northampton, England, and brought up to admire and love the beauties of Nature; it was not very surprising therefore that, in addition to his business as merchant tailor, in the city of London, Ontario, he was of late years also engaged in the cultivation of a fruit farm, just outside the city. He had been in Canada since about 1855, had built up in London a fine business, and was personally held in the highest esteem by all who knew him.

Nearly twenty years ago he was elected Director of our Association for his district, and continued to serve for many years; and only for his modesty in persistently refusing to be a candidate, he would have been elected President. He was a constituent member of the London branch of the Entomological Society, of which he has been Vice-President and President.

We are glad to give place to the accompanying fine photogravure of such a faithful friend of our Association.

FOOD PLANTS OF THE SAN JOSE SCALE (ASPIDIOTUS PERNICIOSUS) IN OHIO, EXCLUSIVE OF FRUIT TREES.

THE following list includes forest and ornamental trees and shrubs, upon which the San José scale has been found breeding in Ohio. Nearly all of these have been found in sufficient numbers to indicate that the insect might thrive on any of them. The Cotoneaster was sent for inspection, it having been recently received from a Long Island nursery firm, and when received was literally covered with the scale:

Grape, *Vitis labrusca.*
Linden, *Tilia Americana.*
European Linden, *Tilia Europœa.*
Sumac, *Rhus glabra.*
Japan Quince, *Pyrus japonica.*
Cotoneaster, *C. frigidum.*
Flowering Peach, *Prunus*, sp.
Flowering Cherry, *Prunus*, sp.
American Elm, *Ulmus Americana.*
Black Walnut, *Juglans nigra.*
Willow (imported), *Salix verminalis.*
Cut-leafed Birch, *Betula*, sp.
Lombardy Popular, *Populus dilatata.*
Carolina Poplar, *P. monilifera.*
Golden-leaf Popular, *P. Van Geerti.*
Catalpa, *C. speciosa.*
Chestnut, *Castanea sativa.*
Osage Orange, *Maclura aurantiaca.*
Snowball, *Viburnum opulus.*

To these must be added the several varieties of roses, currants, gooseberries and raspberries. The Early Richmond cherry I believe to be exempt from attack, as I have found trees whose branches interlocked with those of a pear that had been killed by the scale, yet the cherry was uninfested; and in two cases that came under my observation, where this variety of cherry had been grafted upon mahaleb stock, and shoots had sprung up from below the graft, the shoots were badly infested with scale, while none at all could be found on the trees themselves.—Canadian Entomologist.

GEORGIAN BAY.

THE above is a fair representation of a point on south shore of Georgian Bay within the fruit belt of that favored region. The mountain shown rises about a 1000 feet above the water of the bay, and at this point is about ½ a mile from the water, with a gradual rise for that distance, ending in an almost perpendicular bluff which can only be ascended with great difficulty by pedestrians. Between the face of the cliff and the water, apples, pears, plums, apricots and peaches do well and seldom or never suffer from frost. This elevation, known here as the Blue mountains, varies in its distance from the water and this strip is the fruit belt. It extends from Collingwood as far as Owen Sound, giving a coast line of about 60 miles and in width from a ¼ of a mile to seven or eight miles. Finer apples, pears and plums are not produced in the world, when every thing is considered, than are to be found in some of the orchards in this strip, and the quantities produced have now become so great that buyers from a distance are attracted. The Northern Division of the G. T. R. line runs along the shore from Collingwood to Meaford, with stations at Craigbeth and Thornbury. This road, with the lines of steamers from Collingwood with the G. T. R. and C P. R., and steamer connections at Owen Sound give excellent shipping facilities for Europe or the West. Above the cliffs is the broad plateau of Western Ontario. The whole section is thickly settled with a progressive people, and yet good fruit lands can be still picked up at reasonable rates.

FIG. 1207.—GEORGIAN BAY.

SPRAYING.

I WOULD strongly advise anyone who intends to spray his fruit trees to invest in a good spraying outfit. A poor apparatus will discourage most people, and I believe many are making a very imperfect job of it, or are giving up in disgust, because they have not a proper outfit for the purpose. The working parts of the pump should be of brass. Never use a pump with leather valves, or that takes the liquid through the plunger, or that requires packing every day to keep it from leaking around the plunger. I have such a pump, and I have lost more time fooling and fixing with it than would buy a good one. It has been twice at the blacksmith's and twice at the local pumpmakers, besides the time lost tinkering at it myself. You may pack the measly thing, and screw it down till you can hardly move the plunger, and before you spray half a row of trees it will be leaking as bad as ever. I will try to squeeze through this season with it, and then the scrap iron Jew will get it.

No one should attempt to spray without a bamboo extension rod. It is one of the best things in a good outfit. It makes it so easy to reach all over the trees. The collar on the top end prevents the liquid from dripping, and your hands need not be wet at all, and you can do rapid work with it. To sum up, get a pump with cylinder and valves of brass; one that don't require frequent packing to keep it from leaking. The pump should sit well down into the barrel, at least the cylinder should, and not be placed away upon the end of it. The hose connections and fittings should stand a pressure of 75 lbs. to the square inch without leaking. And one most important point is, that it should do rapid and effective work, and at the same time be easy to operate. With such an outfit, including the extension rod, and if with two nozzles, good effective and rapid work can be done, and with an ease that makes spraying a pleasure, everything in the shape of fruit bearing trees or canes or vines should be sprayed with the Bordeaux mixture.

And while on this subject of spraying, I might say that a peculiar blight has struck the apple orchards this year, turning the leaves black, causing the newly set fruit to drop, and in many cases the trees lost nearly all their foliage. Winter apples will be very scarce this year. Duchess and Alexander and trees of the Duchess type were not affected at all. My orchard was not sprayed last year, but was sprayed this year. And what I would like to know from Mr. Orr is this, if this blight was prevalent through the country (and judging by newspaper reports it was), how did those trees that were officially sprayed last year (treated six times) stand the blight? Is the foliage all right on them? Have they held their fruit, and how do they compare with others not treated at all? Now, Mr. Orr, examine those trees and let us hear from you. If you can show that trees thoroughly treated last year were not affected by this blight, either in foliage or fruit, then you will score one of the strongest points possible in favor of spraying. I believe that in future those who want to make a success of fruit growing, will have to spray everything they grow.

G. C. CASTON.

Craighurst.

STRAWBERRY NOTES.

WILLIAMS is one of the best varieties here, the only fault is the white tip. But the berry is firm, large, good color and first rate quality. Plant healthy and vigorous. Haverland stands hot dry weather better than any other and carries its size well through the season. Timbrell for home use can hardly be surpassed for high quality, delicious flavor, but it won't do for a commercial berry, as it is too soft for shipment, and does not color well. I see that Mr. Stevenson says that if you give it lots of potash it will color all right. Well, I mean to try that. Its an easy matter, just scatter some good fresh hardwood ashes over the plants before the fall rains set in, and it is surprising what a large dose of fresh ashes the strawberry plants will stand without injury. I have tried it and know whereof I speak. Mr. Stevenson is right; they all require plenty of potash.

Little's 44 has done well this year, producing a good crop of fine large berries, quality first class, delicious flavor, but too soft for shipping. The foliage is the healthiest of any plant I have yet tested, and on account of its good quality, large size and good color, it should have a place in the home garden. Anyone who grows a patch of strawberries for home use should give it a trial. Marshall, Noble, Beauty are failures here. W. Belt produced a few fine large berries, but very few of them; I will give it further trial before discarding it. H. W. Beecher won't pay for the ground it occupies, and unless it does better next year it will have to go. Aroma, has risen in my estimation this year. It is a andsome berry, good color and quite firm. If it does as well next year I shall plant it largely for crop. It is medium to late as regards its season. Brandywine is a good berry, fine color, large and of good quality, a good pollenizer as it is rich in pollen, but scarcely productive enough Warfield is productive but needs high culture, and won't stand hot dry weather; berry moderately firm, dark red, fair size, but very poor flavor, insipid in fact. I would not can it for my own use at all. It lacks the true strawberry flavor. Of all the varieties tested, and their name is legion, we have not yet found the perfect strawberry. Wilson's Albany in its day was about as near it as we will ever get I fancy. There are hosts of new varieties, many of them fine to look at, yes, and of fine quality, but when you pick them twice they are done Or they are too soft to handle or there is some fault. The ideal berry must be large; the larger they are the better they sell. It must be firm. It must not set too much fruit on one stalk, so that it will carry its size through the season. It should have bright red color and good flavor. It should color all over at once; no white tips, and above all productive Foliage healthy and free from rust

The man who originates such a berry will be a great benefactor.

I find by experience that it pays to grow the very best; the best you can grow are none too good for your market. You will never find the market glutted with first class berries. My advice to intending growers would be, always make quality the first point, and when your reputation is once established the rest is easy.

G. C CASTON.

Craighurst.

GOOSEBERRIES.

WITH reference to question 955, by Mr. D. J. Stewart, of Ailkens' Ferry, P. E. I., I make the following observations: In England, of red gooseberries, the Industry takes the lead, being not only of fine flavor, but also very productive. Crown Bob, Ashton Red, and Lancashire Lad also stand high. Red Champagne is smaller, but of fine flavor; it has not yet mildewed with me. Sulphur is a good yellow, of fair size, and mildews a little with me. Lewis's Amber is a larger yellow, of fine flavor, and mildews but slightly; generally not at all. Whitesmith is very productive; I have seen fully eight quarts on a tree, of an agreeable mild flavor, but mildewed somewhat some years, other years it will be quite free. White Eagle is a larger berry than Whitesmith, much less subject to mildew, in fact I have not yet seen mildew upon it; of good pronounced flavor, productive, and a more vigorous grower than Industry At present I think more of this variety than of any other English kind. When in a good rich soil, the berries grow surprisingly large; sometimes they are pyriform or pear-shaped, and at other times nearly perfect ovals. Of the English hairy green sweet berries, Glenton Green is very good; I have not seen any mildew on it. It is not a large berry, and about the size of Downing. Crown Bob, Ashton Red (Red Warrington), Industry and Lancashire Lad have all mildewed badly with me this year. There are some American varieties, such as Chautauqua, Columbus and Triumph, which have all mildewed badly with me this year, but last year they did not. These appear to me to be only seedlings of Whitesmith, and resemble it closely.

With regard to mildew, I have tried everything to cure it, and I come to the conclusion that it cannot be cured when once it has begun. Sometimes it only slightly affects the tips of the young shoots, but frequently the berries also. I tried liver of sulphur, sulphate of copper, kerosene emulsion, digging flower of sulphur in round the bush, fertilizing freely with ashes, watering the bush well in dry weather, and all to no purpose. I have cleaned the infested berries with a weak soap and kerosene wash, and the disease formed again on the berries. But I have not tried spraying the bush *before* coming into leaf. Perhaps this might prevent it.

I have my bushes on two or three classes of soil; clay loam and light clay loam, on my own farm; and a sort of sandy, or gravelly loam, on the place where I live. On this latter soil, the mildew is far worse than on the clay loam. In Halton county, at Milton, where I was six years, the soil was a good stiff clay loam, on a clay subsoil. I did not see any mildew there; and in Judge Miller's garden, there were several kinds of the best English gooseberries, which did well with him. Evidently, Prince Edward Island would be the place for gooseberries, if there be a suitable stiff soil there; but the "light sandy soil" is not the thing, either for gooseberries or raspberries. But in England they have good gooseberries, on all sorts of soils, the sea-air being the main desideratum.

W. E. BROOKS.

Mount Forest.

ON THE MARKETING OF FRUIT.

(Synopsis of lecture by George T. Powell before the horticultural institutes in New York state. In addition to the points for harvesting and marketing apples, great care is necessary in picking apples if they are to keep well. Every bruised spot starts decay. Pick by hand into baskets. Some assort directly into barrels, leaving the heads off for a few days while the fruit sweats, others carefully dump the apples in long narrow low piles to sweat, and then assort them. Some wrap fancy apples in tissue paper, like oranges, pack in sawdust and store in a dry, cool place to hold for the late market.)

1. Necessity of care in marketing—In addition to intelligent and thorough culture, special attention must be given to the best disposition of crops. In these times of close competition, the successful fruit grower must be well informed upon markets, where heavy supplies are coming from, where to ship to best advantage, the expenses in shipping to different points, reliability of commission men, their facilities for handling and storing fruits, etc.

2. Selection of the sales merchant—Ascertain information as to a well-established, reliable firm to ship to. Do not ship to every man who sends out letters soliciting trade and promising prices considerably above the regular market, for many such are only sidewalk salesmen with no established place of business; they will return one or two good sales, get a run of trade and then move to another street, failing to make further return for fruit received. With so many good firms of long years of excellent reputation, there is no excuse for losing money through irresponsible salesmen. It is better to send to only one firm in a place, for if fruit is uniformly fine, a trade will be established upon the trade-mark, and where two or more firms are handling the same mark, different prices are sometimes asked, according to supply and demand, and sometimes lower prices are taken than where one firm has the entire handling of a mark.

3. The grower should know the market—The grower should go to the market in which his fruit is to be sold, inform his salesman as to what he has, confer with him about the package most desirable, how the fruit should be packed and displayed. The salesman knows what his trade demands, the grower does not; hence the grower, to get the best prices, must meet the wishes of those who buy, and he must find this out by going to the market or corresponding with the salesman.

4. The packing—Inferior fruit should not be shipped, in fact, should not be grown. It is not wanted, is in the way, has to be marked "off," and is an injury, to a certain extent, to good fruit. Uniformity in package and in packing is required Undersized barrels should not be used. Fruit should be assorted in two grades, fine and good. The grower's name should be placed on all good fruit, but not on that which is below good. A good class of men only should be employed in the packing and handling of fruit, for the work is of a different character from that of handling potatoes. Employ by the day, not by the job. Women are good in assorting and packing fruit, for they handle not only quickly, but as a rule more carefully than men. Ship in carload lots as far as possible, as better rates of transportation can be had, and better sales realized than for small lots.

5. Secondary means of caring for fruit—Every community should be equipped with facilities for using up fruit when markets become heavily overstocked. Canneries and evaporators will save losses, and enable a wider distribution of fruit in the home and foreign markets. Cold storage is especially valuable for pears and apples, extending the season over a much

longer period. It is better to store pears in the city where they are to be sold, as the customer can secure his fruit at the time he wants it, and rent or storage charges at thirty cents per barrel per month, are not more costly than to provide storage where the fruit is grown.

6. Importance of co operation—Our fruit business needs to be placed on a better, thoroughly organized business basis. There should be in every town, where orcharding is attempted, a fruit growers' union or association, to which every grower should belong. All fruit should be properly graded, inspected and placed in the market in the best possible condition. Upon such basis, the income to grower and handler would be materially and permanently increased.—Am. Agric.

SHADE TREES ABOUT THE FARM HOUSE.

THE annual report of Thomas Southworth, Clerk of Forestry for Ontario, for the year 1897, is a creditable one, and a step in the right direction. The terrible famine in India, and the almost annual drought in our province, are warnings that we must beware of denuding of our country of its forest areas, and that it is all-important to make vast forest reservations for the sake of their climatic influence, if for no other reason And not only so, but our country might well spend some money in making, or at least in encouraging, artificial forestation.

We give an extract from the report, which deals with the importance of planting shade trees near the house.

Nothing will improve the appearance of the farm-house and outbuildings more than a shelter belt, or even a few isolated trees planted near them, care being taken to put them not so close as to exclude the sunlight. They will not only serve as protection from the wind, but their shade will keep the house cool during the heated term. A well-planted, attractive looking farm, with the buildings half hidden in verdure and the lanes and field corners green and shady, will, should it come into the market, bring a considerably higher price than one where all looks bare and bleak from the absence of trees.

The length of time that must elapse before a tree becomes commercially valuable or useful for its wood to the owner, is the usual objection raised when farmers are advised to become timber-growers. There is no doubt that this feeling has done much to deter them from utilizing in this way their waste land—which at present contributes nothing, except perhaps pasturage, to the returns of the farm. Yet this is a mistaken, short-sighted view. There are many things requiring to be undertaken in every branch of productive industry which involve a large outlay that will not be repaid short of many years. Farmers will build large barns and undertake subsoil drainage on an extensive scale without foolishly expecting to be recouped during the next two or three years for the cost and labor involved. They realize that these are investments which add permanently to their capital. It is exactly the same with tree-planting. A plantation of thriving young pines, maples or chestnuts of merely a few years growth, is not, it is true, bringing

in any money, but nevertheless it is an appreciable addition to the value of the farm which increases year by year. Should the owner wish to sell or raise money upon his property, the growing wood—like the new barn or the sub-soil drains—will be an asset to be considered in fixing its value. Even should the man who plants trees die before the wood is matured, he will leave so much more to his family. Men do not, to the credit of human nature, cease all active exertion as soon as they have secured merely enough to maintain themselves in selfish indolence and comfort during the remainder of their lives. They wish to leave an ample provision behind them for those dependent on them.

The labor bestowed upon tree-planting is a very trifling contribution, towards the welfare of future generations compared with the sacrifice which many men in every line of industry make with an eye to the distant future and without stopping to consider whether they personally will reap any of the benefit, or whether it will merely increase the inheritance they leave to their children. But for the short sightedness which took no note of probable future needs and met all remonstrance with the answer that posterity must look out for itself, the farmers of Ontario would be in a much better position. There is many a farmer who twenty or thirty years ago has shaken his head forebodingly over his diminishing wood-lot and reflected how advantageous it would be to have a few more acres in timber, who, if he had occupied an off-day occasionally in transplanting saplings instead of consoling himself with the reflection, "Well, it'll last my time anyway"—would now have a plentiful supply of fuel instead of having to buy coal or travel half a dozen miles to cut cordwood. It is time that this slipshod hand-to-mouth management which looks only at immediate results was abandoned and that the lessons of experience produced more extensive and decided results in inducing the farmers as a class to take an active, practical interest in tree culture as a means of maintaining and restoring the fertility of their lands as well as a source of ultimate profit.

BUY FRUIT INSTEAD OF CANDY.—"I wish," said a doctor the other day as he watched a group of school children troop out of a candy store, where they had been spending their pennies, "that I could form a society among little folks in which each member would take a pledge to spend all his pocket money for fruit instead of candy." It seemed a funny way of putting it, didn't it? But the physician was very much in earnest, and at the moment it probably occurred to him that, as children like clubs, an anti-candy club would be a very good one for them. He wanted to to do two things—to stop their eating the unhealthful sweet and to coax them to eat more fruit. An apple or a banana or an orange can usually, one or the other of them, be bought for the price of a little candy, and the fruit is much better in every way than the sweet.—New York Times.

JUBILEE TRILLIUM.

FIG 1208.—JUBILEE TRILLIUM.

SIR :—I inclose to you for your journal a photograph of a very valuable new double Trillium, composed of twenty-one petals, and pure white. One bloom measures three and a quarter inches across and resembles very much a double white Camelia; the two lower blooms are the double ones, the upper bloom being one of Trillium grandiflorum, from which you will get a fair idea of what such a double flower would be.

There is no doubt but that this Trillium will yet be greatly appreciated in Gardens, and especially since it has been found on Jubilee year and in Jubilee Park, and that I named it the Jubilee

Lily. I have also got a yellow double one, but not tested enough yet to prove its merits.

Thomas Meehan says, "Your Trillium is a beauty, and will be welcome in flower gardens."

This, I think, is the first Double Trillium that has ever been found.

RODERICK CAMERON,

Gardener Q. V. N. F. Park, Ont.

Niagara Falls South.

ANNUAL POPPIES.

IF you love color in flowers, there is no way in which you can gratify your desires so cheaply and so fully as by planting a good selection of poppies. For the last six weeks my garden border has been such a gorgeous display and source of pleasure to ourselves and friends, that possibly my experience with varieties and mode of cultivation may be of interest to some readers of the HORTICULTURIST.

If you want to grow the finest poppies, plant the seed as early in the spring as the ground can be worked, and be sure not to plant too deep; many fail from planting the seed so deep that it does not germinate. The best way is to rake your bed smooth, scatter the seed thinly, then rake gently and firm the soil well with a flat board, or, better still, the back of a hoe. When they are up two or three inches, thin out to about six inches apart for the weaker growing kinds, and nine to twelve inches for the strong growing, *Papaver somniferum* type. They will bloom abundantly, much closer than that; but to get the best plants, finest flowers and the longest season of blooming, it is necessary to give them plenty of room. If you do not want to save seed, pick all the pods as soon as the petals drop; it lengthens the blooming season very much not to allow any seed to ripen, and saves a lot of trouble the next season. The seed is quite hardy, and if left to ripen, comes up in countless numbers the following spring, often where they are not wanted. One advantage of self-sown seed is that the plants bloom earlier—this year, the first week in July; while spring-sown seed, though put in early, did not bloom for about two weeks later.

Poppies are so very susceptible to cross-fertilization, that new strains are constantly arising One German firm offer 24 varieties of Papaver somniferum, and every year is adding to the number. In a garden where several kinds are grown, it is no use saving seed, if you want to keep your strains true to type. Last year, I carefully saved a number of special colors of Shirley and Ranunculus-flowered; this summer I had a great show of flowers from that seed, some very fine ones, but not a single plot was the same as the one the seed was saved from.

The ease with which new varieties can be originated has led to a great deal of confusion in the seed catalogues; the names give no clue to the species to which the variety belongs, making it very difficult for the buyer to know what to order, unless he is acquainted with the names and types.

The following varieties, which I grew this summer, comprise the cream of the family:

SINGLE FLOWERS.

Papaver somniferum—The Opium Poppy.—Grows from 2 to 4 feet high;

leaves pale green, long, wavy, clasping, quite smooth, not bristly. Flowers large, from three to five inches across ; white, cream, rose, white with pink edge, etc. ; petals not fringed ; stamens very numerous, cream colored ; a handsome flower, worthy of more general cultivation.

P. somniferum, var Danebrog—Danish Flag Poppy.—The Victoria Cross of some catalogues, is exactly the same as the type in plant and leaves ; the flowers are not so large; petals fringed, light scarlet with a white blotch at the base of each petal, making the form of a cross.

P. Rhœas—The common Field Poppy of Britain.—Plant, many-flowered, a foot or more high, scabrous with many bristles ; leaves pinnately parted, lobes deeply toothed ; flowers on long thin stalks, two to four inches across, bright scarlet with dark colored stamens ; a handsome flower, not much grown now, being supplanted by its more beautiful relative.

P. Rhœas var Shirley.—The most beautiful of all poppies ; in plant and habit of growth, the same as the type, but the flowers are of the most delicate silky texture and in every imaginable shade and combination of white, pink, and red, with yellow anthers. Unfortunately, they are very evanescent, and only last a short time if picked after the sun shines on them ; but if picked early in the morning, as soon as they open, will keep fresh for a day or two in the house.

Majestic and Hooker's ever-blooming as grown by me from Henderson's seed, were nothing but rather poor strains of Shirley.

P. Rhœas var, umbrosum.—The Fire Dragon of some catalogues ; has most intense dark cardinal flowers, each petal with a jet black blotch at the base, with dark stamens about the same size as the Shirley.

Papaver lævigatum—Persian Poppy.—In general appearance the plant is very like umbrosum, not quite so robust, nor as bristly. The flowers are about the same color, but the black blotches are margined with white and the petals are more upright, not opening out so flat as in P. Rhœas.

Papaver glaucum—Tulip Poppy.—A very distinct species ; the plant is a weak, spindly grower, particularly if planted thickly ; leaves pale green, shaped as in P. Rhœas but not at all bristly, not so pale in color nor as glaucus as P. somniferum. Flowers of an intense brilliant cardinal,—the finest red in the family—without dark base, the outer petals much larger than the inner and overlapping at the edges, stand more erect than any other poppy, giving it the appearance of a tulip. The seed does not germinate as freely or as quickly as the other species.

Among the double poppies the finest are those derived from the Opium poppy ; the oldest form is *P. somniferum Paeoniæflorum* or Peony flowered poppy, a large handsome flower 4 to 5 ins. across, very double, a large number of the stamens being converted into narrow petals ¼ to ½ in. wide, tapering to the base and rounded at the outside end, generally more or less twisted, giving the flower a fluffy, peony-like look. They can be had in a great range of colors, from pure white to the darkest red and purple. If planted too thickly or grown in poor soil the flowers are much smaller and only semi-double. Among the newer colors Salmon-rose is a lovely flower of finest form and color, the so-called Nankin Yellow is not a yellow, only a dark cream color ; there is no yellow in the Annual poppies.

P. somniferum fimbriatum — some-

times called P. Murselli.—The Carnation Poppy of American seedsmen, differs from pæoniflorum in having the petals straighter and fringed at the ends. The range of colors is even greater than in the peony form, many of them having special names. Of these the best known is the "Mikado," a very showy flower, white, margined with rose pink, very double and finely fringed; it varies in shade of pink, some of them being much darker than others.

Another good form is Snowball, also called Snowdrift and White Swan. Very double, as round as a ball, finely fringed, and as white as snow.

"Fairy Blush" is a creamy white just tipped at the end of the petals with rose pink.

Pink Pet, sent out to customers for trial by W. A. Burpee & Co-, is a very much improved Mikado. The strain is not well fixed yet, as many of them do not come true to color. When true they are quite round, very finely fringed and of a most beautiful shade of pink. A very desirable variety that will supplant Mikado.

Chamois-rose, new last year, is the best of the fimbriatums; perfectly double and a charming color, a pink with a dash of yellow in it, decidedly the finest double poppy in my collection this year.

SMALL DOUBLE POPPIES.

Sometimes *P. Lævigatum* comes semi-double, but with this exception all the smaller double poppies belong to the genus Rhœas. The Ranunculus poppy, *P. Rhœas fl.pl.*, has all the gracefulness of the single form with a wonderful diversity of color, white and every imaginable shade of pink and red with dark stamens in every degree of doubleness from 2 or 3 extra rows of petals to perfectly double.

The varieties *umbrosum* and *Shirley* frequently show a tendency to come double, though never so perfectly double as the Ranunculus.

The Rosebud is a selection from the Ranunculus, very double and more compact than the average Ranunculus poppy.

Golden Gate is a mixture of *umbrosum*, *lævigatum* and *Ranunculus* in single and double. The New Japanese pompone is evidently also a selection from the Ranunculus poppy. Of those I grew this year the greater part were a poor strain of Ranunculus flowered with a few very beautiful pink flowers resembling double Hollyhocks, with the broad outer petals projecting half an inch beyond the narrow inner ones. If selected to this type it would be a very desirable addition.

R. B. WHYTE.

Ottawa, Ont.

TO MATURE UNRIPE TOMATOS.—According to M. Chemin in the Annals of the Horticultural Society of the Department of Haute-Marne, the following simple expedient suffices to ripen off a crop of Tomatos. If the weather has been unfavorable for ripening of the fruit, the plants should be pulled up when the most of the fruits have reached full size, and laid horizontally on a layer of clean straw in a sunny place, and without any further trouble the fruits become completely ripe, and retain their peculiar fine flavor. In this country, we do much the same kind of thing, with the difference that the plants are put under some kind of glass protection.

NARCISSUS.

"When daffodils begin to peer,
With heigh, the doxy over the dale,
Why, then comes in the sweet o' the year;
For the red blood reigns in the winters pale."
SHAKESPEARE.

The lovely nodding flowers of the Daffodil have always been a theme of the poets and when one contemplates a bed of their blossoms of "beaten gold" the thought usually is that the half has not been told. The fabled origin of the poets, and in one of the best English translations we are informed that the attendant nymphs were interested—

"And looking for his corse, they only found
A rising stock with yellow blossoms crowned."

All varieties are not hardy in Ontario, selections must therefore be made with some care. It is well to note however, that all the strongest growing sorts and finest flowers are capable of standing

FIG. 1209.—NARCISSUS HORSEFIELDII—type of the Trumpet-flowered Daffodils.

Daffodil is interesting; in the publication of Barr & Son "Ye Narcissus and Daffodil" we find the following: "Nearly all early writers agree in treating this flower as an emblem of that youth whose name it bears. He is said to have slighted the nymph Echo in favor of his own shadow, and Nemesis changed him into this blossom as a punishment for his self-esteem. It is a deep-laid myth, and as pretty a one as often told to us by the well here. The exceptions are some of the white flowered sorts, and the weak and fragile growing species.

In long lists a classification is generally made and for those not familiar with them we will give the division mostly used.

The Trumpet section, embraces those having flat leaves and a somewhat long trumpet-shaped cup.

The Incomparabilis section or peer-

FIG. 1210.—TYPE OF THE INCOMPARABILIS OR PEERLESS DAFFODILS.

less Daffodils often closely resemble the above, many hybrids of the trumpet section are included with these. The Trumpet is always much shorter; more in the form of a cup.

The Polyanthus Narcissus are the varieties of N. Tazetta or the bunch-flowered section.

The Poets Narcissus are all those which have pure white perianths and a distinct red or purple rim to the crown or cup.

Narcissus Jonquilla is the pretty little Jonquils so favorably known in most gardens.

All forms of the Narcissus Bulbicodium or Corbularia may be called the Hooped Petticoat Daffodils.

The Hooped Petticoat varieties are rather uncertain as to hardiness and the Polyanthus varieties are more so, both are known to do well when lifted after flowering and kept in a place free from hard frost till early the following spring. If the bulbs have been kept in good condition they will bloom as well as if they had not been disturbed. The Jonquils have a habit in this climate of making a growth in the fall, which if injured by the winter, as it usually is, greatly impairs the vigor of the bulbs.

The terms "trumpet" and "perianth" are somewhat confusing to beginners. One of the large trumpet-flowered varieties serves best for the purpose of explanation.

In Fig. 1209 a flower of Narcissus Horsfieldii is shown; in this the trumpet is of a deep yellow and the perianth or surrounding row of petals, is white; in other varieties the color, size of trumpet, and form of perianth, varies a great deal but the trumpet and the perianth may be always easily recognized. In the short-trumpeted or incomparabilis section and the poeticus section the term "cup" is used in place of trumpet.

Varieties like Trumpet Major, incomparabilis, incomparabilis plena, orange Phœnix, Stella, Burbidgeii, and poeticus

FIG. 1211.—TYPE OF THE BULBOCODIUM (CORBULARIA) OR HOOPED PETTICOAT NARCISSUS.

are often used for naturalizing under trees, between shrubbery and in grass. Being quite hardy these kinds increase rapidly and soon make in such spots sights worth travelling to see, or as some one has said "sunshine in a shady place."

The soil suitable for the majority of varieties is a loam with a mixture of very well decayed manure or leaf mould, for weak growing sorts or miniatureforms a somewhat sandy soil will be found best.

Of recent years some very fine hybrid and seedling varieties have appeared, these with the almost endless forms seen in the old varieties make the Narcissus deserving of much more general attention as a spring flower.

WEBSTER BROS.

Hamilton, Ont.

FIG. 1212.—TYPE OF POET'S NARCISSUS N. POETICUS.

CROWN IMPERIAL.

(FRITILLARIA IMPERIALIS).

IT is impossible to speak too highly of these for every purpose. Whether as a single specimen in the mixed or shrubbery borders, as pot plants for the greenhouse or exhibition table; but it will be seen to better advantage planted in clumps on the lawn. The flowers are exceedingly handsome, pendant, bell-shaped, of very tall form, hardy, and bloom early in spring if planted in good sandy garden soil, about four inches deep. Left undisturbed for a number of years, they will form gigantic and picturesque groups. The striped-leaved varieties are worth growing for their foliage, but when surmounted by their coronets of bloom, are very beautiful. The best way to grow for conservatory use, is, one bulb in a five or six inch pot, using nice loamy soil with a small proportion of leaf-mould and a little silver sand. The variety used so much in England for pot work is F. rubra folia aurea variegata (variegated-leaved Crown Imperial).

F. BRUNTON.

Hamilton.

ORNAMENTAL TREES AND SHRUBS.

TOO little attention is given to the culture of ornamental trees and shrubs. In a general way none but a few of the old standard varieties have been planted. This is to a large extent owing to the fact, that the demand for ornamental trees has been limited, and our nurserymen have not gone into the propagation of the more rare and beautiful kinds. Most of the ornamental stock that has been planted throughout the country has been sold by travelling agents. They have done a good work, but have not gone far enough in this direction, as they sell only a few well-known sorts that have been grown by the firms they represent.

It was my good fortune to visit the Rural New Yorker Experiment Grounds a year ago. I spent a very pleasant and profitable day with the Editor, Mr. Elbert S. Carman and his amiable wife, both of whom are very enthusiastic horticulturists. I think it would be impossible for any one possessed with a love for the beautiful in nature, and a few roods of land, to visit Mr. Carman in his beautiful home at River Edge, N. J., without coming away with a determination to plant some of the pretty trees and shrubs to be seen on their grounds. This, however, was the effect it had on the writer of these lines. My grounds were not ready for planting, I therefore ordered my stock and planted them in nursery row, from which they can be taken next spring and planted where they are to remain, with scarcely any risk of losing a tree, and I will thus gain nearly a year's growth on them.

I often think when driving through the country, that it is no wonder so many farmers' sons leave the farm and go to the already over-crowded cities where their surroundings will be more congenial. Farmers as a class, are very busy people, and the majority of them think they have no time to bother with ornamental trees. Did you ever notice that it is those who have most to do that give most attention to ornamenting their homes with nice lawns, trees, etc.?

How often do we see a farmer build a fine house, and give no attention whatever to the grounds. Such a place, no matter how much it cost, is not worthy the name of *home.* A few dollars spent in the purchase of ornamental trees and shrubs, and a lttle time given to the planting and cultivation of them, will add so much to the appearance of a home. I believe it will not be long till this subject will receive more attention by our farmers. It is not unusual to buy a pretty tree or shrub from some travelling-agent, plant it out, and then consider your duties ended, thinking that it should know enough to take care of itself when once planted. My advice would be, never to plant a tree until you have firmly made up your mind to give thorough cultivation, especially during the first few years after planting. Without this you cannot hope for any great measure of success. By keeping the soil constantly stirred around the trees during the growing season you preserve a mulch of loose earth at the surface, which prevents the evaporation of the moisture contained in the soil, which is most essential to the growth of the tree. The following are a few of the great number of the more rare ornamental trees: *Picea pungens* (Colorado blue spruce) I will place this at the head of the list as the most beautiful evergreen with which I am acquainted. The trees are propagated from seed. The seedlings are quite variable in color: some of them are but little better than

the white or silver spruce. To get the finest specimens it is therefore necessary to select those with the darkest blue foliage. The tree is perfectly hardy, and will grow with any reasonable care.

Abies concolor.—This is next to the Colorado blue spruce in point of beauty. Selected blue specimens are nearly, and by some, considered equal to the above-named tree. The foliage is more soft and feathery, and tree quite hardy.

Picea polita (Tiger tail spruce).—A beautiful tree from Japan; quite hardy; foliage light deep green, forming a nice contrast with the above.

Picea alcocquiana, (Alcock's spruce), is another Japan tree of great beauty. The foliage is deep green, above which forms a brilliant contrast with the silvery tint of the underside of the leaf—hardy.

Retinospora plumosa and R. filifera are both pretty. They have soft feathery foliage, and are very useful where a small tree or shrub is required; quite hardy.

Mungo pine is a nice dwarf-growing tree that usually grows broader than it does high; very pretty in contrast with tall-growing trees.

S. Verticillata (Umbrella pine)—A Japan evergreen, with upright trunk and horizontal branches, bearing whorls of shining green; very broad, flat needles, lined with white on the under side. These needles, by their remarkable size, and still more remarkable arrangement in umbrella like tufts, and their leathery texture gives this tree the most unique and elegant appearance of any known conifer.

I have all the kinds named above, growing on my grounds, and consider them well worthy of more general planting.

W. W. HILBORN.

(To be continued next month.)

PREPARING ROSES FOR WINTER.

ALMOST all kinds of roses may be kept over winter out of doors. Many sorts are hardier than supposed, and need but little protection. Many plants which die through the winter are killed by too much care. One of the most common errors is to cover the plants too early in the season before the wood is thoroughly ripened, and while the weather is still far from very cold. All that have watched their rose bushes know that the chief injury to them in the winter season occurs toward spring. It is when the heat of the late winter sun sets the sap in motion, and the freezing nights follow, that the bushes are injured. In the Middle States, there is no need at all to cover roses of any kind until after New Year's. By that time, their shoots are well ripened and able to withstand what cold they may encounter to better advantage than if covered early.

The hybrid perpetuals, or June roses, as they are popularly called, need no covering at all here, near Philadelphia. Perhaps the extreme tips will be hurt, but there is rarely more to be cut away than good pruning requires. Usually, the shoots are tied together, their tops cut off, and a little straw tied neatly about them. This is a good way when the plants are on the lawn; but when they are in cultivated ground, the work is as well done by bending the shoots over and covering them with four to six

inches of soil. There is no surer covering for safety than this, not only for roses, but for every kind of deciduous shrub as well.

Everblooming roses, which embrace such as the Tea, Noisette, Bourbon, China, and their hybrids, must have some protection, but not nearly so much as many suppose. These roses do not bloom from the shoots of the previous season, as hybrids do, but from fresh ones of the same season. Nothing is gained by preserving all the length of the shoots. In fact, were they not injured, they should be pruned away to within a few inches of the last season's growth, as better flowers succeed such a cutting back. This being the case, all that is required is the covering of the plants. This is easily done by placing manure, leaves or soil about them, to about a foot in depth, doing it after the ground has frozen solid, and removing it when spring has certainly come for good.—Joseph Meehan, in R. N. Y.

THE CHRYSANTHEMUMS AT THE "GORE."

IN giving you the methods employed in getting up the above exhibition of Chrysanthemums, I am not going to write as a man who holds secrets or methods of growing, unknown to others, or to give pointers to other growers, whereby they may excel beyond their fellows. I for one do not believe in secrets, so called; but I do believe that any intelligent gardener, or in fact anyone who, having a love for good flowers, can at little expense get up a display such as was seen in the greenhouse at the "Gore" last autumn, by simply paying attention to the details which are necessary for the successful cultivation of this plant.

This collection was grown in 4 in., 5 in., 6 in., 8 in., 10 in. and 12 in. pots, in single stem, two stem, three stem, and bush plants.

The cuttings for the larger specimens were rooted in March. Some were grown on in pots, some were planted out, from these. Cuttings were struck as required in June and August, and grown on into 4 in., 5 in. and 6 in. pots; the plants planted out were lifted early in August and taken under glass to save them from the Chrysanthemum bug; those in 4 in., 5 in. and 6 in. pots were grown entirely under glass, getting plenty of air and a good syringing at least once a day. Whenever the plants showed signs of having filled their flowing pots with roots, they were fed with liquid manure; horse and cow manure being used alternately, about a bushel to 50 gallons of water.

The potting material used was the ordinary material in use for all potting, viz., good rotted friable loam, mixed with decayed manure.

A few of the principal points to be observed in growing this plant are: use no cuttings but what are in good healthy growing condition. See that from the time the cutting is started, the plant never gets a check, either from a want of water, or by getting too much. Plenty of drainage when potting. Never let your plants become pot-bound, until they are in their flowering pots. Timely attention to disbudding. The secret of getting good flowers is getting well ripened wood.

ALEX. VEITCH.

Ayr.

ORCHID.

Fig. 1213.

The orchid shown in the accompanying illustration, is Stanhopia oculata, a native of Mexico, sent to F. Wiley, Esq Paris, and grown by him in his conservatory. It is a novelty easily grown, and blooms three times a year. In detail it is beautiful beyond comprehension. There are two or three flower spikes, one proceeding from near the centre of the base of the hanging basket, the other pushing its way as seen from the front. Each spike has eight fully open blooms, which reminds the writer of old fashioned ornaments and carvings seen in the British museum. The pistils and stamens are located in the bent, and pointed pendant section of the bloom; two of them are seen, one directly above the other to the right. Three new flower spikes are showing themselves. The flowers are too large for Mr. Chamberlain; only a Welsh æsthetic would care for them in his buttonhole.

This lovely specimen attracted the attention of hundreds while hanging in the window of the drug store of the Secretary of the Paris Horticultural Society, and many had to be told that it was rea'ly a natural flower.—G. R., Paris.

The Culture of Ferns.—It is better to begin with young plants. Be careful not to over-pot them; wash the inside of the pots clean, and give especially good drainage; use open, rich, fibrous soil, light rather than heavy, and instead of filling the pot with soil to the brim leave plenty of room to hold water. Ferns should never get quite dry at the root, yet it will not do to keep them soaking wet. Many of them, especially the maiden-hair and gold and silver ferns dislike being splashed overhead, and hot sunshine must never fall directly upon these delicate kinds. Ferns are sure to be killed by little dribblings of water given every day. The same rule that applies to watering other plants is good with ferns: When the top of the soil looks dry fill the pot with water to the brim, so that the ball of soil may have a thorough soaking.—Vick's Magazine.

The Canadian Horticulturist

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ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

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DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

EXPORT OF TOMATOES.--From the English market reports it would appear that this fruit can be exported profitably in cold storage. "The Fruit Grower," London, dated July 22nd, quotes Guernsey tomatoes at from 6 to 10 cents a pound, and speaks of the supply as being abundant. When we consider that this fruit often sells as low as ½ cent per pound in this country, it is evident that we are encouraged to attempt its export.

BARTLETT PEARS under the name Williams are now, July 22, being sent into the English market from France, and quickly snapped up. French Jargonelles are sent into the English market in cases of from 48 to 56 fruits, and selling at from 60c. to $1 per case. But these are poor in quality. The best pears promise to bring a good price, as home grown fruit in England is a short crop this year.

UNCLE SAM has placed the duty on fruits as follows: — Apples, peaches, quinces, cherries, plums and pears, green or ripe, twenty-five cents per bushel; apples, peaches, pears, and other edible fruits, including berries, when dried, desiccated, evaporated or prepared in any manner, not specially provided for in this Act, two cents per pound; berries, edible, in their natural condition, one cent. per quart. Currants two cents a pound; grapes 20 cents per cubic foot of capacity; plums 2 cents a pound.

THINNING PEACHES seems to be helpful in preventing the spread of rot. This year the Alexanders were so heavily loaded that we thought it advisable to thin, and accordingly we removed from one third to one-half the fruit from the

overloaded trees, excepting from a few left for comparison. Now that we are gathering the crop (Aug. 4th) we find not only larger and finer peaches on the thinned trees, but much less rot. This disease is one of the worst difficulties we have to face in growing early peaches of the Alexander and Hales' Early type; but possibly with diligent thinning, and spraying with Bordeaux mixture, we can overcome it to a large extent.

THE FAILURE OF THE PEACH CROP in Essex this season is a sad loss to many, who are depending wholly upon this fruit for their year's income. Mr. W. W. Hilborn, of Leamington, who has now about one hundred acres in peaches, writes :— "I have no peaches, either early or late, this season. I think I am safe in saying there will not be one basket in this whole district. This is rather hard on us poor fellows that grow peaches only. We will have to live on porridge and faith for the next twelve months."

SAN JOSE SCALE.—Emergency Posters have been sent out from the Central Experimental Farm, warning fruit growers against the San José Scale. The extent of distribution is given, and sufficient description to enable anyone to determine it. Under the head of *what to do* the following advice is given : —1 Send specimen of suspected trees to the Entomologist, Central Experimental Farm, Ottawa. 2 Dig up and burn all infested trees. 3 Cut back severely all slightly affected trees, and burn all cuttings. 4 After cutting back, spray the trees with kerosene emulsion once each week until the middle of September. 5 As soon as the leaves fall, wash the trees with strong whale oil soap mixture, 2 lbs in one gallon of water. Do not delay, act immediately and decisively.

KEROSENE EMULSION. — The same poster gives the following directions for making kerosene emulsion :—Kerosene 2 gallons, rainwater 1 gallon, soap ½lb. Dissolve soap in water by boiling, take from fire and while hot turn in kerosene and churn briskly for five minutes. Dilute for use with nine parts of water.

DUTY ON NURSERY STOCK. — The United States has placed a duty on Myrobalan plum, Mahaleb or Mazzard Cherry stock, of 50c. per 1000 plants, and 15 per cent. ad valorem ; on stocks and seedlings of apple, quince and plum, of $1 00 per 1000 plants and 15 per cent. ad valorem ; rose plants, budded, grafted or grown on their own roots, 2½ cents each ; other nursery stock twenty-five per cent. ad valorem.

THE EUROPEAN FRUIT CROP is estimated as follows :—Apples—England, fourth crop, will require large importations ; France, light crop in the south, fair crop in the north, can export some ; Belgium, third crop ; Holland, fair crop ; Germany, fair ; Italy, good. Pears—England, worst crop for many years ; France, good crop of late kinds ; Germany, good crop of ordinary fruit.

THE APPLE CROP in Ontario grows less promising every day. At blossoming time the outlook was good, but now (August) the scab has spread alarmingly, and many varieties will be worthless. The great importance of spraying is more evident this year than usual.

THE BURBANK PLUM is a magnificent success in the Niagara district so far as growth of tree and productiveness is concerned. Mr. L. L. Hagar of Grimsby, has some young trees breaking to the ground with ropes of this beautiful Japan variety. Mr. Hagar believes that it will prove an excellent acquisition.

SOME OF THE MEMBERS of the British Science Association are visiting the fruit section. Of these we were favored with a call from the Hon. Mr. Scott, Master of Polwarth, and a nephew of His Excellency Lord Aberdeen, whose home is near Glasgow, Scotland. He expressed himself as greatly delighted with the fruit sections of Ontario. We had also an interview with Mr. Wm. Senior, of the London Daily News and Field, to whom we gave full information concerning our intention to place upon Covent Garden market the very choicest of Canadian pears, peaches, grapes and tomatoes. We gave him full description of our Bartlett pears (known in England as Williams) our Crawford peaches, and our Concord grapes, and he promised to give a column in the London Daily News to Canada's fruit and fruit lands.

THE SAN JOSE SCALE was discovered on some ornamental trees at Cornell, and those most affected were at once destroyed; but some valuable ones, not very badly affected were treated experimentally by Prof. Slingerland. In May before the young scales which had hibernated, had begun their spring growth, he washed all parts thoroughly with whale oil soap, two pounds to one of water On June 25th, when these scales had made some growth, every plant was drenched with pure kerosene and water, one part to five; and on July 2nd another thorough application. On July 23rd Mr. Slingerland made a very careful examination and failed to find a single live scale among many dead ones.

THE ENGLISH FRUIT CROP is very fully reported in the Gardener's Chronicle. Apples are reported much under the average over the whole of the United Kingdom; Plums, are ever a less crop in proportion, for out of 319 reports, 280 give the crop as below the mean; so that it is clear that for both apples and plums England must depend largely upon outside supplies

CHILDREN'S GARDENING is encouraged in Great Britain. The Egham Horticultural Society pursue a unique method. Last July they held an exhibition on the grounds of Holloway College, and secured the presence of the eminent novelist Sir Walter Besant, who gave them an address.

The Committee issue in the spring to all the school children of the district willing to grow them, six rooted plants for pot culture, and six packets of annuals to be grown and flowered in pots. Then in the summer, when the annual exhibition is held, numerous classes are arranged to suit the little competitors, and a truly wonderful display is the result. The plants are distributed through the agency of a local florist, to the satisfaction of the Committee.

THE PRUNUS SIMONI does not appear to be an entire failure. Mr. A. M. Smith brought us on the 12th of August a fine specimen grown by him at St. Catharines, which measured 1⅞ inches long and 2¾ inches broad; a size that would astonish our friend Mr. Van Deman, formerly U. S. pomologist. Mr. Smith's trees are about six years of age and their yield is about two baskets to a tree. He finds they sell well in the market, bringing from 75c. to a $1 per basket—or about double the price of the early peaches. The faults is the tendency to rot, like the Alexander peach and the poor quality as a dessert fruit. The tree also seems to be short lived. Mr. Smith says he has noticed that Simon's plums bears better when propagated by grafting on the peach, than when grafted on the plum.

SMITH'S EARLY PLUM seems to be one of the earliest of plums. It colored up this year about the end of July, and was sweet and good; but small.

THE WILLARD PLUM ripened with Mr. A. M. Smith this season about the 25th of July. He sold it for 75c. per basket, but thinks no one will buy a second basket, on account of its miserable astringent flavor.

STRAWBERRY RASPBERRY.—We have just received (Aug. 14) some samples of this novelty from our experiment station in Huron. They are certainly very interesting, having characteristics of both the berries mentioned. We measured an average specimen and found it 1¼ inches long and 1 inch broad. It is very attractive in appearance, but not equal to either the strawberry or the raspberry in flavor. It is said to be a hybrid from Japan.

THE AITKINS PLUM has just come to hand (Aug. 14th) from the Jewell Nursery Company. It is a pretty plum of American origin, of medium size, oblong, measuring 1½ inches by 1¼, somewhat lop sided; suture none; stem slender; about a half an inch in length; skin bright red and very attractive; flesh tender, melting, sweet and fairly agreeable; a freestone. The points claimed in favor of this plum are its hardiness, earliness and uniform size.

THE ALEXANDER PEACH is yearly proving itself less desirable for the commercial orchard. It is productive enough, indeed it overloads, and must be thinned in order to produce fruit large enough to be worth shipping at all. Then it is very subject to the Rot fungus, which usually destroys the fruit before it ripens; and, even if it does ripen, the quality is poor, and the markets do not want such stock, except at very low prices.

THE HAMBURG EXPOSITION.—The attention of our readers is called to the advertisement of the grand exposition now in progress at Hamburg. A special fruit exhibit is to be opened about the middle of September and continued until the close of the exposition. We have received letters from the management asking whether our horticultural societies would not combine and send an exhibit of our fruits with the hope of extending our trade with that country. Unfortunately it is now too late for an arrangement to be made for such an exhibit. No doubt it would be very desirable, but, in view of the approaching exposition at Paris in 1900, we presume it will be wise to concentrate all our efforts in making as large and creditable an exhibit as possible on that occasion. A magnificent display can be made in Paris, and it will there reach many of the same people interested in handling fruit as it would do if exhibited in Hamburg. Let us not delay too long in making preparation for the Paris Exposition. The Government of the United States has already appointed a commissioner to take charge of the preliminary work.

WHITESMITH GOOSEBERRIES.—Mr. Thos. Beall, of Lindsay, sends us samples of the finest Whitesmith Gooseberries we ever saw. The dozen weigh 6.057 ounces! and one sample measures 1⅜ inches long by 1⅛ inches wide. We wrote questioning whether they could be indeed Whitesmith, to which Mr. Beall replied, saying, "There can be no doubt about the berries being Whitesmith. I did not grow them more than about half the present average size

ten years ago, and the berries are the product of the same bushes. Experience is gained when growing one variety twenty or twenty-five years, as I have done in this case. I now send you another dozen. Finished marketing this variety yesterday, August 3rd; the last lot being about four bushels.

THE FRUIT CROP IN GREAT BRITAIN.

The time has come in the history of fruit growing in Canada, that we must open up an export trade in our fruit products, or declare the present no longer profitable, except in a very few lines. Raspberries have been so very cheap this year that many growers have allowed the fruit to waste on the bushes rather than spend money on pickers and crates. Currants have been very cheap and small. Gooseberries almost unsalable. These two fruits were hitherto exported to the United States, but now the tariff has been made almost prohibitive; we must look elsewhere for a market, and, perhaps they can be exported to Great Britain in cold storage.

We are glad to note the excellent opening in Europe this season for our fruit. Apples are a great failure, and will be high-priced. Messrs. M. Isaacs & Sons, of London, England, write:—

We take the opportunity of giving you some particulars as regards prospects of shipments from your side to our market this season. There is no doubt that the crops on this side will be exceedingly light; this refers not only to England, but also to the Continental countries whence we are in the habit of getting supplies of this fruit. Apart from this, crops of fruit generally are exceedingly light both here and on the Continent, and this should give far better results for shipments of American, Canadian and Nova Scotian apples than last year.

Of course, it is unnecessary to point out that it is no use shipping very common soft apples to our market, as they will not bear transport, and the expenses of handling and freight are quite as high on this common fruit as on the better class. As regards this, we think the disastrous results obtained for some of the softer kind of apples last year, should be a lesson, although a very expensive lesson to some shippers.

On the other hand we note the view of the National Shippers' Association, which met at Buffalo on the 6th of August. Regarding the apple crop, the following is reported:—

The most important subject discussed was the crop report. Delegates from the different States submitted estimates of this year's supply. It was stated that the yield in the West would be about 75 per cent. of the average; in this State 50 per cent.; and about the same percentage in New England.

Until the present time the Eastern Section of the United States has grown the greater part of the crop and governed the market. Indications now are that the largest and best crops will be raised in Illinois, Iowa, Missouri, Kansas and Arkansas. It seems to be the general impression of the men in attendance at the convention that the prices will not be higher this year than last.

We also quote the following paragraph from the "Fruit Grower of London headed "Scarcity of Fruit."

Were it not for our foreign supplies we should have one of the shortest crops of fruit generally that has been known for years; thus the Jubilee year now turns out to have been a complete failure as far as English fruit is concerned. In the fruit shops there is hardly anything but foreign fruits to be seen, and with the exception of tomatoes and grapes, we have the worst show known in the history of the trade. To make matters worse even, the supplies of really good tomatoes have been exceedingly short, and the consumers are to be congratulated upon the fact that even though there is a scarcity of English fruit, fair supplies are available from foreign sources. But even with these supplies the majority of the fruit shops have a half-stocked look about them, and as far as quality goes, including the foreign supplies, we are really worse off than we have been during the past 20 years. Undoubtedly bad seasons have had much to do with this state of things. What with frosts at home, and the frosts and storms abroad, the fruit producers have had a bad time all round, but the foreign grower has the best of it at present. In conjunction with this shortage prices in some instances have been up to a phenomenal degree. When we have bushels of cherries, English, making from 16s. to 20s. we know there is something specially wrong about the production of a fruit that pays growers well when sold at 8s. and 10s. for the same measure. Looking ahead, what prices may be expected to rule for choice English apples? Well, it is possible that fabulous prices will be readily realized, and if they go up to 12s., 15s., and 20s., a bushel we shall not be surprised in the least. Independent of the citrous fruits, the world's fruit output will be poor, and possibly we are going to have one of the worst all-round fruit season known to the oldest distributors in the trade.

Question Drawer.

Hardy Cherries.

962. SIR,—Please give me the names of the best market cherries that would succeed at Orangeville.

R. C., *Orangeville.*

Of sweet cherries, we think that Early Purple and Windsor should succeed; of the sour cherry class, nearly all the Kentish and Morellos should do well, *e. g.*, Montmorency, Wragg, English Morello, Ostheim, etc. All these are good market varieties.

Strawberries.

963. SIR,—Please mention the names of some of the best strawberries for this locality.

R. C., *Orangeville.*

Clyde, Bubach, Haverland, Greenville, Williams.

Smith's Improved Method of Grafting.

964. SIR,—Could you give instructions for the Smith's Improved Method of Grafting?

C. MORETTI, *Montreal.*

Pruning Norway Spruce Hedge.

965. SIR,—Please tell me how to care for a Norway Spruce Hedge, including pruning. When and at what point should the long shoot on the top of each tree be cut off.

W. S., *Toronto.*

The first essential in growing a Norway Spruce hedge is to induce good healthy vigorous growth. Very often exposure of the roots in transplanting stunts an evergreen so that it is very long in recovering its vigor. If it is light colored in foliage and shows poor growth, it will need cultivation, and enriching of the soil, and little or no cutting of the top, except in fall or spring, when growth is dormant. But as soon as vigor is evident, summer pruning should be practised, and that as frequently during the season as may seem necessary to preserve the form desired, and render the weaker parts more dense. The leading shoots may be cut back at the option of the owner, without any special rule, the only object being to keep the height down to a certain line. To do this, it is well to stretch a line on some stakes at a certain height and prune accordingly. Each year of course this may be raised until the desired height has been gained. As to form, it is usual to prune to a square top, as with the one shown on page 327, but we ourselves prefer the conical form, and this also requires less labor in pruning. The Norway Spruce is one of the most vigorous growers of the evergreens, and therefore will require more pruning than any other to keep it within bounds as a hedge; but fortunately it endures the shears well, and the more it is sheared the thicker it will grow.

The American Arbor Vitæ (or White Cedar) is much slower of growth, and therefore more desirable as a hedge than the Norway Spruce.

Blight on Apple Trees.

966. SIR,—At present I am troubled by some kind of blight affecting my orchard, and thinking you might recognize the trouble and be able to advise me, I take the liberty of asking your opinion.

In the early spring, after the fruit had well set, small dark patches appeared on some of the trees, Alexander and Yellow Transparent chiefly, other kinds being only slightly touched. The fruit spurs of the present season were killed completely, fruit and leaves browned up to the bough from which they sprung. Also young tender shoots of the season's growth were killed down for 12 or 15 inches of their length. The damage was to be noticed on all sides and parts of the trees. Duchess, Wealthy and other kinds, though intermingled as to position, had only a very few diseased spurs.

I cut off every dead shoot as carefully as possible, but in three weeks the dead spurs seemed to be as manifest as before. On close

examination, I observe that branches, from which dead spurs have been cut, have the bark discolored for some distance up and down from the spot where the cut was made, and when cut through, the pith or core is dark, as if the disease was extending up the limb. I am not supplied with any magnifying glasses. Some of my neighbors are troubled in like manner. Kindly diagnose if you can and much oblige

JOHN S. J. WATSON,
Rockingham.

The trouble is doubtless due to the apple blight, which is identical with the well-known pear blight. In the eastern parts of the continent apple blight is less prevalent than it is in the west. It is caused by bacteria, called by scientists *Micrococcus amylovorus*. It is most prevalent in hot seasons, especially if also moist. The germs are believed to enter the plant through the blossoms, and also at ends of tender twigs, or in spots in the bark injured either by the hot sun, or the severe cold; in such cases the blight is commonly known as "Sun scald," although the sun only gave rise to conditions favorable for the entrance of blight.

Some varieties are less liable to blight than others, and it is well to consider this in planting an orchard, especially in those places where blight is known to be troublesome.

The Fruit Crop.

St. Lawrence District.

SIR,—The apple crop in this district has changed very little since my report last June, but the quality will be very poor, in unsprayed orchards, and only medium to good in those sprayed. The fruit in many cases being badly formed, owing no doubt to imperfect fertilization of the blossom.

Fungus is still making rapid growth on both fruit and foliage. A fair estimate would be: Apples, 2% of a full crop, or about one-half average. Pears, too few to make an estimate; not many grown. Plums, none. Grapes, over average; not many grown.

HAROLD JONES.

Cataraqui.

SIR,—The apple crop in this district is under average; quality very good. Grapes, average; quality good. No peaches, and very few pears or plums, grown in this district.

GEORGE NICOL.

Victoria County.

SIR,—Your postal card of 14th inst. duly received. I quite agree with your statement that the prospects for the apple crop have materially changed since the last published report.

The prospects at present are, that the apple crop will be less than one-half of average, but good to very good in quality. Pears, Clapp's Favorite and Flemish Beauty much over average and of excellent quality. Bartletts, average in both quantity and quality. Peaches are not grown here. Plums, we have none this season. Grapes, under average in quantity; vines looking well; fruit nearly full size, but we expect no ripe grapes here, as the season of growth (now) is fully two weeks later than usual and the weather unfavorable.

THOS BEALL.

Lindsay, Aug. 16th.

Middlesex and Perth.

Apples in this district are only about 20% of a crop; Duchess among early, and Northern Spy among late, are doing fairly well. The home demand will consume all the supply. Pears and plums are a good crop, above the average; the quality is generally good, except with the Flemish Beauty pear, which is badly spotted where it was not sprayed. Local demand for pears and plums will be pretty well supplied at home.

T. H. RACE.

Prince Edward County.

SIR,—Your postal card received, *re* the apple crop. From all returns received, we do not think the crop will be over 25%. The Beauty pears are very rough, cracked and spotted. Bartletts are clean and of Clapp's Favorite we do not think there will be over half a crop. Very few plums and grapes are grown around here. There are no peaches here at all.

H. BOULTER, *Picton.*

Wentworth.

SIR,—In reply to your enquiry: the apple crop in this district is much below an average; quality poor. Pears above an average, and very fair quality. Peaches, very heavy crop. Plums, above average; very good. Grapes, heavy crop; large and fine.

M. PETTIT, *Winona.*

Lincoln.

SIR,—Great change in apple crop since last report; not more than one-eighth of last year's crop; badly spotted and wormy. Plums, heavy crop. Peaches, same. Grapes, same, but in places affected with mildew and rot to a small extent. Pears, Bartlett full crop; Bosssock average; other sorts mostly light, except Kieffer, average.

A. M. SMITH, *St. Catharines.*

United States.

The apple exporters say that, from the reports so far received, the crop in New England is below the average, especially winter fruit; that in New York there is less than an average crop along the lakes, and a fair crop in the Hudson River Valley. In Virginia a fair crop, but very light in the Ohio River Valley. Missouri, Arkansas, Kansas and Iowa promise an average crop. Michigan and Nova Scotia are below the average. Baldwins are reported light in all sections of the United States, and the larger part of the crop consists of russets and green varieties. This is bad for the exporter, for the red varieties take best in Great Britain.

Renfrew County.

Apples, Summer and Fall under the average, Wealthy a fair crop, other winter apples not much grown here.

Plums, Native red a failure, De Soto and Sinclair varieties a full crop

Grapes under the average upon the whole, vines that came through the winter all right are up to the average, but many were injured by the severe season and bearing very lightly.

R. B. WHYTE, *Ottawa.*

Oxford County.

SIR,—I think from what I have seen and enquiries made, the apple crop will only be medium, quality good. Pears very good, quality good. Peaches not much grown in this section. Plums will be very good, quality good. Grapes good, quality good.

JOS. S. SCARFF, *Woodstock.*

Ontario County.

SIR,—I regret to say that the outlook for a paying crop of apples is very slim, owing largely I think to too much wet weather. Many varieties that were well loaded early in the season, have kept dropping off till a very few are left, especially Duchess and Astrachan. R. I. Greenings are very small compared with last year, in fact nearly all our varieties are below the average of last season. Very few Baldwins are on the trees, as many of the trees never bloomed in the spring. Spys, Canada Red, Haas, Wealthy, Yellow Bellflеur, King, Fall Pippin, Ribston Pippin and Twenty Ounce are fairly well loaded, but all below the average in size at this time; nor do I believe they will make it up, as the nights are getting cold.

In pears the prospect is good, especially early varieties, Clapp's Favorite taking the lead, Bartlett coming a good second, while Louise Bonne, Keifer's, B. d'Anjou and Clairgeau are coming on finely, and Rostiezer is literally crowded with beautiful samples.

In plums, the crop is the best we have had for years, both in quantity and size, and the prospect is good for profitable crop this season. Small fruits were very plentiful and difficult to sell at remunerative prices, in fact gooseberries, which were very fine, could hardly be disposed of at all. Grapes are looking well, but unless we get warmer weather, many varieties will not ripen, as most varieties were late in blooming in the spring. I also find where spraying was done thoroughly, there is more fruit and better quality than where it was omitted or only partially done.

R. L. HUGGARD, *Whitby.*

THE APPLE CROP is reported abundant in Missouri, Arkansas, and Eastern Kansas, but owing to the failure in the Eastern States, Mr. Goodman, Secretary Missouri State Society, expects high prices, owing to the failure in the east.

The grape crop is reported very abundant.

THE FRUIT GROWER'S STORY

A man once determined a rural life
Was the happiest, best and more free from strife
Than a life in the city of noise and soot,
So he moved in the country and commenced raising fruit.

He planted some peaches, some apples and cherries,
And between the tree rows some fancy strawberries.
He watched with great care the trees as they grew,
And pruned and sprayed as most orchardists do.

His money gave out, yet still he worked hard,
Well knowing that soon he would have his reward
In selling the fruit that the trees would unfold,
And bring him returns in silver and gold.

At last the crop comes, fruit plenteous and fine,
It's ready for market. Now comes the time
When new friends appear; clever fruit men galore
Who give much advice, but give nothing more.

He needs money for help and money for boxes—
His advisers are gone like so many foxes,
But he gets his fruit packed and ready for sale;
And ships, how? Well—on this letter so frail:

Mr. Rural Fruit Grower:—
My very dear sir:
A very great favor on us you'll confer,
If at once you advise us what fruit you can send;
We refer you to Bradstreets, and remain
Your dear friend.

He ships after getting the usual wire:
"Market good, ship quick, we think will go higher."
He stops not to think that this house wires all over,
And the market's a puzzle, like "pigs in the clover."

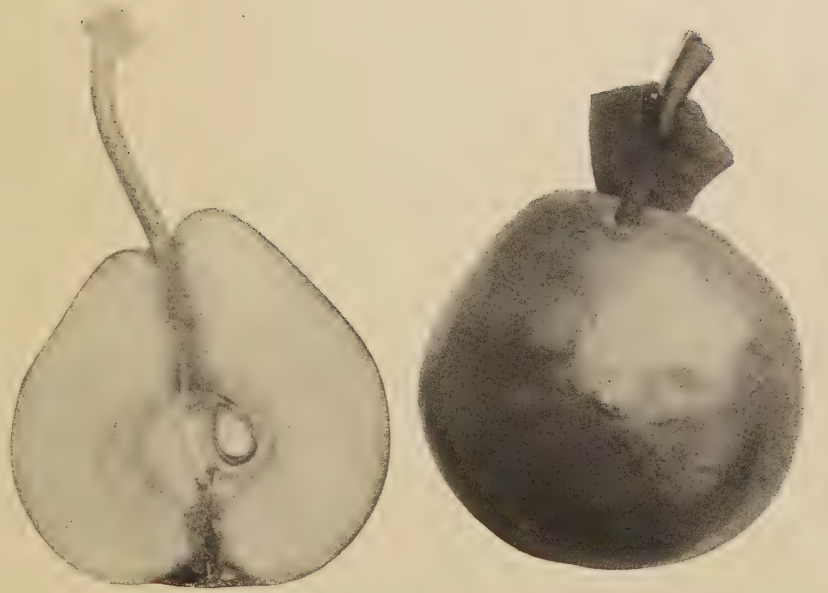
For many do exactly like our Rural Fruit Grower.
Result: market higher? not much; market lower.
A few days later the returns he receives,
Ninety dollars; deduct charges, one dollar it leaves.

SOLILOQUY.

"One dollar the first of my orchard's crop,
I'll let the rest of my peaches rot.
No! I can't do this, I'll continue the gamble,
Perhaps in the wind-up of the general shamble,
A dollar or two may happen to stray
Around to me, and help my box bills to pay."

The dream of the beautiful rural life
Of the gentle fruit grower, secluded from strife,
Is a pretty tale; but to us who know,
It's not a sweet dream, but a perfect side-show.

—*American Fruit Growers' Magazine.*



Petite Marguerite (from photograph by Miss Brodie.)

THE
CANADIAN HORTICULTURIST.

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PETITE MARGUERITE.

AMONG the desirable varieties of dessert pears for the home garden, we would certainly include the Petite Marguerite, a pear of the highest quality for table use. At Maplehurst the tree has proved itself an abundant bearer and a good grower. The fruit is not large, but as size is not an object in a dessert pear, this is not a fault. Its season is immediately after the Giffard, and just before the Clapp and the Tyson. As a market pear it is hardly to be commended, because of its small size and color; and it will be a long time before we can convince the average dealer that size and color are not the chief considerations in a fruit.

The engraving is from a photograph by Miss Wilena Brodie, assistant to the writer, who is making a special study of photographing fruits, natural size, for the experiment station reports.

Origin—Angers, France, in nurseries of Andre LeRoy.

Tree—Second rate in vigor, and first rate in productiveness; succeeds as either standard or dwarf, but more vigorous as a standard.

Fruit—Medium size, about 2⅜ in either diameter; form, oblate, obtuse pyriform; skin, light green, often tinged and mottled with bright red on sunny side, yellowing somewhat at maturity; stalk, an inch and a quarter to an inch and a half in length, set in a narrow cavity, of which one side is often much higher than the other; calyx partly open, in a shallow corrugated basin.

Flesh—White, yellowish at core; texture fine, melting, juicy; flavor sweet, vinous, agreeable.

Season—August 20 to 30.

Quality—First rate for dessert; second rate for cooking.

Value—Home market, second rate.

THE BACK YARD AS A SUMMER RETREAT.

FIG. 1214.

THE Englishman realizes the value of flowers in and about his home as a refreshing element. In the city or country the stately mansion or humble cottage is never without its note of color given by potted plants showing at the window or planted in the available space about the dooryard. American city dwellings rarely have more than a few square feet of ground in the rear of the building, but by ingenuity and care much can be done to beautify this little breathing space.

Assuming that a high board fence separates our yard from that of our neighbor, let us consider it the frame for a picture. For a space of two feet from the ground paint the boards a dark, quiet green. Above this use a cream, white or very pale green. This will make a pleasant, harmonious background for the delicate tracery of leaves and flowers growing against the fence. The clothes-lines should be fastened to posts set at the outside edge of the walk. If you have much space plant the posts at the corners, as shown in Fig. 1214. The plot of turf in the centre should not be broken up with flower beds. A group of aquatic plants can sometimes be introduced, however, by sinking a half barrel in the ground, as shown in Fig. 1220. But do not attempt to sacrifice this valuable space to flower beds or floral effects of any sort unless you have an abundance of room.

With little expense and the expenditure of time some tree trunks can be obtained from the neighbouring country, and used instead of the posts. Use your discretion in sawing off the branches. Pretty rustic effects can be obtained by leaving some of them longer than others. These trees can be located at various points to avoid a set appearance and will thus add a picturesque feature. A tub containing trailing vines

FIG. 1215.

Fig. 1216.

can be placed on the top, as shown in Fig. 1217. Brick piers, built at the four corners of the centre plot, supporting an overhead trellis (see Fig. 1215), will give a very pretty effect.

When space is very limited the idea suggested in Fig. 1216 is effective. Plant an eight-inch post firmly in the ground at the desired spot. On top affix a large cart wheel, to be bought at any carriage-maker's, or make one of strips of board, each one inch thick by two inches wide and of desired length. Nail these on edge to a circular piece of plank at the centre, and tack a stout barrel hoop around the outside rim to secure the ends of the spokes. Nail the circular plank to the top of your post. Surmount the whole with a half barrel in which are planted quick-growing vines, and you will have, in a few weeks, an artificial tree. Vines can be also trained up the post from the ground.

Another effect is shown in Figure 1221. A number of short rustic posts are sunk in the ground in a circle, leaving out one in the series for a gateway. A taller centre post is placed in the middle. Kegs containing vines and plants are placed on the tops of the posts. Wires are stretched from each to the top of the centre post, and a very pretty, artistic arbor is the result.

A good way to treat the top of a fence is shown in Figure 1217. Ordinary barrel hoops are bent and nailed to the back of the fence and supported by laths. Boxes of plants are arranged on brackets, or upon the ledge at the back, if permission can be obtained.

Fig. 1217.

Figure 1218 shows another arbor effect at the rear end of the yard,

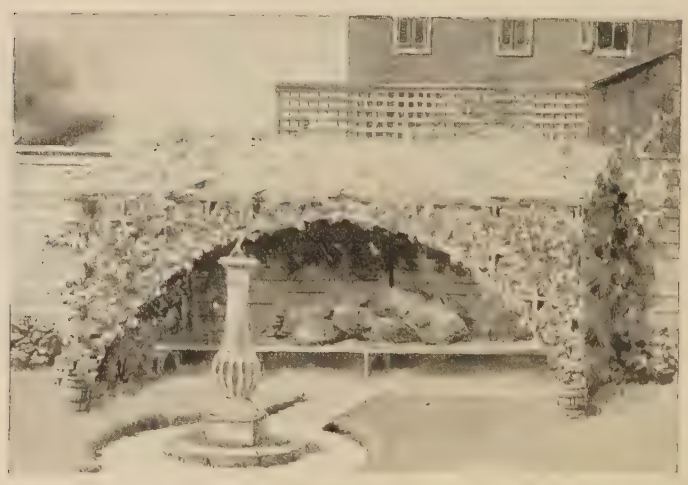

FIG. 1218.

FIG 1219.

FIG. 1220.

containing a seat, with pillows which may be covered with water-proof cloth. The assistance of a carpenter may possibly be required to construct this feature, but it is not complicated or expensive, and will furnish a pleasant and delightful nook for a siesta.

Oftentimes want of space prevents the swinging of a hammock in the yard. A plan is shown in Fig. 1219. Have two brackets or davits made of two-inch gas pipe and bent at the blacksmith's. At the hanging ends hooks are welded, to which hang the hammock. The pipes are fastened securely to the fence by bands of iron screwed fast to the fence. Wires may be strung overhead upon which vines can be trained.

The back portion of the yard, being the least used and the most seen from above, is the place for whatever large beds or shrubbery you wish to use.

By grading from large plants to small even a bed two feet in width against the fence may be made to present a large surface of plants and flowers, while here and there, climbing plants, running up on string trellises, may be carried to the top, and along it; and if you will select the plants so that you have early and late flowers, you may by trimming out dead foliage, keep your garden always in bloom; and don't forget the tall, spear-like plants, such as Hollyhocks and Sunflowers, and even the

FIG. 1221.

FIG. 1222.

despised Mullen of our fields, which in England is grown in great beauty in gardens, its velvety gray-green leaves and spikes of yellow flowers contrasting charmingly with more showy plants. These plants make a fine background.

In such a tiny garden it is scarcely practicable to have clipped borders, or any large growing trees; but a clump of shrubbery could be made a feature in place of a flower bed. An unsightly pile of stones may be transformed into a pretty feature by filling the interstices with earth and planting therein the Mullen and Thistle. Ordinary corn will give the effect of Palms, and will grow fairly well if it receive plenty of sunshine. It needs very little water. Even a brick wall may be made to blossom and fruit as well. It is quite a common sight in England to find small fruit trees trained up flat against the sunny side of a house, and all bearing well.

We are indebted to the Ladies' Home Journal for this article, and the accompanying cuts.—EDITOR.

THE CORAL BERRY.

THIS excellent new berry fruited splendidly for us this season. It is so widely different from all other sorts of berries that a few words concerning it will not come amiss. It resembles a small silver Maple tree, growing to a height of about 5 feet, the leaves and wood are of a silver green color. The old plant dies down after bearing its fruit, the same as raspberries and blackberries. This plant suckers very rapidly and forms a dense thicket. The fruit of the Coral berry is a clear, brilliant red, while the flavor is most superb, being strangely aromatic sweet and delicious. It is the most solid berry for shipping that we have ever discovered. These berries resemble very much the common red raspberries, except that they are very highly colored when compared with any raspberry. The bushes are quite productive of these large solid red fruits. The Coral berry is quite delicious when served with sugar and cream or made into a short cake.

S. L. WATKINS.

Grizzly Flats, Cal.

FRUITS AT SIMCOE STATION.

RASPBERRIES.

CUTHBERT still stands at the head in point of quality. The Columbian is the greatest bearer. Fruit large, excellent for canning, but would not ship well, I fancy, as it is not very firm when quite ripe, and it must not be picked before it gets its purple color, or it lacks flavor. But it is a prodigious bearer and should find a place in every garden.

Turner is simply a wild berry, of good flavor, but too small and soft for market. "Louden" and "Miller" bore a few berries this year and they seem to be very fine. We still favor "Shaffer's" for canning, it is quite hardy and bears well here.

Of the Black Caps I have tried so far, I think "Smith's Giant" takes the lead. I have fruited it two years. I like it better this year than last; it is a good bearer. Fruit large and quite firm, resembles the Gregg, but is of better quality. Canes only slightly affected with anthracnose, and quite hardy.

Lovett is a failure here; Palmer very good, but not so productive as Smith's or "Older." Hillborn is of good quality, but too small. Older is a splendid berry for home use, very productive, quality first-class, but too soft to ship very far. But I would advise anyone planting for home use, to be sure to plant a few of the "Older," as, for using fresh on the table, they are far and away the best of all the Black Caps.

BLACKBERRIES.

Agawam has fruited well this year, and I do not quite agree with Mr. Peart, as to its quality, though it certainly lacks flavor until quite ripe. The canes are healthy and have proved quite hardy so far. The fruit is large and fine looking. "Taylor," growing alongside of it, makes a very poor showing in comparison. I only succeeded in growing one plant of the Gainor. It has not fruited yet, for which I am sorry, as Mr. Peart praises it highly. I am anxious to know if it will do as well here as at Burlington.

"Wilson, Jr." is so badly affected with anthracnose, as to be almost useless. But I believe we have struck something fine in the "Eldorado."* The canes are very healthy and just as hardy as the Snyder. The fruit is large, firm, and the quality all that could be desired I am highly pleased with this variety and expect great things of it. Erie has not fruited yet, and from the appearance of the canes, I should judge it will not amount to much here.

Of course all these varieties of berries need further trial, as nothing conclusive is proved from one or even two years' fruiting. It is the varieties that give the best results for several years, that are going to be the most valuable. One important fact I have learned and would wish to emphasize, is that those who wish to succeed in growing Raspberries and Blackberries, will have to spray their bushes with Bordeaux mixture.

I notice the disease known as anthracnose getting worse every year. It does not seem to affect the vigor of the young canes, the first year, but, by the next year, it has spread over a large part of the surface like a rust, and the canes turn yellow and often die before fruiting. I am planting my rows now eight feet apart, so as to be able to drive between them with a spraying rig. A low-wheeled truck would be the thing

* Eldorado is not going to be so productive as Agawam.

so if early potatoes or other stuff were planted between the rows, the truck would straddle the rows without injury. The outfit would be, of course, a good spray pump, ten or twelve feet of hose, a bamboo extension rod about five feet long, with a drip collar, and a Vermorel nozzle attached. This outfit, I believe, would do rapid and effective work. Currants may be sprayed in the same way, and this is the easiest way of dealing with the currant worm.

Spray with Bordeaux and Paris green in spring, and there will be no trouble with the worms. It beats hellebore for that purpose; and there is a kind of rust on the white and red varieties, and a mildew which affects some of the black varieties, for both of which Bordeaux proves quite effective.

Several varieties of currants have fruited this year, some three and some two years planted. Some varieties do not bear as early as others, so that to compare them at so early an age, may not do them justice. Some that make a poor showing now, may do better when bushes are full grown. However, I have made a test by way of comparison; the fruit was picked when ripe, and weighed. The black varieties were three years, and the white and red two years planted. There were three plants each of blacks, and six each of red and white.

RED AND WHITE CURRANTS.

No. of plants.	Variety.	Date of picking, ripening.	lbs.	oz.
6	Versailles.	July 20.	9	8
6	Cherry.	"	13	4
6	Fay's Prolific.	"	12	3
6	Prince Albert.	Aug. 1st.	3	5
6	Victoria.	"	2	4
6	White Grape.	July 20.	6	8

BLACK CURRANTS.

3	Saunders.	Aug. 1st.	4	8
3	Lee's Prolific.	Aug. 5th.	2	10
3	Black Naples.	"	2	9
3	Champion.	Aug. 10th.	2	8

TREATMENT.

Sprayed with Paris green just after leaves opened; later, with Bordeaux and Paris green, and given good cultivation. Soil in a fair state of fertility; rich loam, no clay.

The Red Dutch was not taken into account, as the fruit is too small, to be of any value. Of the reds, Fay's was the largest. Cherry and Versailles not far behind it. Prince Albert and Victoria, medium size, later, and very acid. The three leading varieties of reds, Fay's, Cherry and Versailles, are the most productive, as will be seen by the table. Saunders the most prolific of the blacks. Champion is much the largest of the blacks.

The three best red varieties gave within a fraction of two pounds to each plant average. It would be safe to assume that these bushes, when full grown, would yield three times that, or six pounds each. Planted five feet apart each way, an acre would contain 1,700 plants. These, when full grown, should produce 10,200 pounds of fruit, or about 6,800 quarts, which if sold at 4c., would give a gross return of $272 per acre. Or, if they only doubled their present product, it would give $136 per acre. That would be the present yield of bushes, two years planted.

Perhaps this way of estimating may be regarded by some, like the story of the boy and the rats, who when asked how many rats he had caught, said, that if he got the one he was after, and two more, he would have three.

Mr. Pattison told us at Kingston, that every kind of fruit is too plentiful, that planting is overdone in this country, that present prices will not pay the grower.

I agree with him as to black currants at the prices they were sold at this year, they certainly will not pay. But I believe there is still a profit in the reds, on ac-

count of their greater productiveness, and more extensive demand for them. Black currants are only used by the majority of people for medicinal purposes. Very few relish them when canned. But the red varieties can be turned to a variety of uses, as canning, and for jelly for pies, etc.

There might be an outside market found for red currants and their products, made into jam, jelly, or canned. There should be a profit in growing them, even at present prices. (They sold here at 5c. per box, for best ones). Will someone who has been growing them on a large scale and for some length of time, kindly rise and tell?

G. C. Caston.

PRUNING FIR TREES.

THE problem with many owners of fir trees is how to keep them the desired size and shape, and, in addition, maintain a healthy growth from the lowest limb to the topmost shoot. As a rule the entire conifer family possesses a tendency to assume a conical shape, differing some in outline. The object sought is to so regulate the pruning as to preserve this form, strengthen the lower branches and lessen its tendency to an excessive upward growth.

The idea of depriving an evergreen of its leading shoot at first seems barbarous, but if by so doing the tree acquires a tendency to fill up below and grow much more slowly, it is just the operation needed for all except the largest park-like effects. No better illustration of this can be had than an ordinary evergreen hedge. Prevent the putting forth of leading shoots and the normal conical shape is converted into an impenetrable mass of shoots. Here, then, is the idea to work on: Check the upward tendency by shortening the leader. This will strengthen the base and cause very slow upward growth. This pruning must begin early, at least by the time the young trees are 3 or 4 feet high, when they usually begin to make rapid growth. This will of course depend upon the condition of the tree. If a tree is making but moderate growth with a plentiful supply of side branches, the main shoot might need no shortening, while another no higher, but with a leading shoot 2 to 3 feet long, may be cut back one-half. By so doing it will be found that all the buds left on the leader will push out One of them, unually the topmost, will start out to replace the original main stem. Sometimes two leaders will start. In this case a summer pinching of one will give impetus to the other, it not being desirable to have more than one leader. But this effort of the tree to replace a pruned leader is what is wanted. This with judicious checking means in the end a perfectly formed mass, which will increase in beauty with years, and yet will be only of moderate height for a long time.

Fig. 1123.—A View of Beebe Plain from a hill near Stanstead.

MEETING OF THE QUEBEC POMOLOGICAL SOCIETY AT STANSTEAD PLAIN, QUE.

THE province of Quebec has two provincial Horticultural Societies :—(1) The Montreal Horticultural Society, is more or less local in its character and has to do with the floricultural section of Horticulture more intimately than the pomological branch. (2) The Pomological Association studies the adaptability of the various divisions of the province, to the growth and cultivation of the large and small fruits. An interesting meeting of this latter Society was held at Stanstead on 17th and 18th Aug. The Quebec Pomological Society still retains the good old-fashioned plan of holding summer sessions. These summer sessions have many advantages. Members who attend are often enabled to secure valuable object lessons by studying the fruits, particularly of the summer types, on exhibition and in the orchards of the place where the meeting is held. Stanstead is situated near the Vermont border, about 9 miles from Newport, Vt. It is the centre of one of the finest farming and dairying sections in the province of Quebec. The configuration of the country is rolling, and in places quite hilly. Many of these hills present most favourable exposures for the cultivation of apples. A view from the top of some hills presents a magnificent panorama of hill top, valley, lake and river. Jay Peak, Camel's Hump and Mount Hosford are prominent features of the distant landscape.

The meeting of this year, while not as large as it should have been, was attended by representative fruit growers from all portions of the province. Messrs. Chapais and Dupuis, of L'Islet, and the Lower St. Lawrence ; Messrs. Fisk and Craig, of Abbotsford ; Messrs. Shepherd, Dunlop and Brodie, of the Montreal district, were among the prominent members present.

President Brodie's address was hopeful and buoyant. While fruit crop of this year was light, as to quantity, and not up to par as to quality, yet the progressive fruit grower who practiced the best method was reaping his reward in securing fruit better in quality than that of his slovenly neighbor.

Mr. Craig, Horticulturist, Central Experimental Farm, Ottawa, gave an address on "Orchard Enemies of the Year." The season had been abnormal in many respects, and for this reason some diseases and some insects had been unusually abundant. Among fungous diseases, *Fusicladium* (Apple Spot) and Gooseberry Mildew were said to be particularly injurious. Mr. Craig recommended the use of Copper sulphate in preventing the spread of the latter disease late in the season. This should be used at the rate of one pound to 300 gallons of water. Bean Anthracnose was also an increasingly injurious dis ease. Soaking the seed before planting in a one and one half percent solution of copper sulphate was the best remedy.

Among the particularly injurious insects of the season were, Tent Caterpillar and Aphis. The latter had been a first-class pest in most portions of the Dominion. Tobacco water, (10 pounds of tobacco waste to 50 gallons of water, with 2 pounds of whale oil soap) had been found to be the most effective remedy.

Mr. J. C. Chapais, of St. Denis, Kamouraska, announced that the winter of 1896-97 had been the most severe in its effects on orchard trees that had visited that vicinity since 1857. Many orchards

Fig. 1224.—A Row of Scott's Winter—Dr. Hoskins in Foreground.

were killed outright The injuries were so irregular, as to varieties, that no definite conclusions could be drawn with regard to the hardiness of individuals. As a general rule, cherries on their own roots had been less injured than grafted varieties. The same was true of plums. In the case of apples, the hardiest varieties, as a rule, had suffered less than the tenderer kinds, but owing to the fact that the greater part of the injury was due to root killing, the question of hardiness or tenderness of the top did not play a very important part.

Wm. Patterson, of Clarenceville, in a paper on currants, spoke strongly in favor of Moore's Ruby. Prof. Waugh, of the Vermont Experiment Station, in a thoughtful address, classified the American plums. He was of the opinion that varieties of the Niagara section of *Prunus Americana* would be of greatest value to fruit growers in the province of Quebec and in the Ottawa Valley. The varieties of Chickasaw or *Angustifolia* type were now being largely planted in Maryland and in the Chesapeake Peninsula.

In speaking of the newer varieties of strawberries, Mr. Craig recommended Bissel, Scarlet Ball and Buster. He was of the opinion that these were decided acquisitions to the list of varieties adapted to commercial culture.

"The Planting of Orchards," by R. W. Shepherd, brought out a good discussion, the general trend of which went to show that apple trees were being planted too closely at the present time in the province of Quebec. He advocated a distance of 33 feet apart each way.

An interesting talk on "Ornamental Trees and Shrubs" was given by Wm. Craig, Jr., of Abbotsford. His remarks were illustrated by specimens of tree and shrub growth from Gibbland Farm. Among the varieties of ornamental trees of beautiful foliage and adapted to the climate of Quebec, he recommended Schwedler Maple, Kentucky Coffee Tree, Honey Locust, Cut Leaf Birch, Golden Arbor Vitæ, Golden Retinospora, Concolor Spruce and Austrian Spruce.

Mr. C. P. Newman, of Lachine Locks, gave useful information upon cider making. His paper went to show that summer apples were of little value for this purpose and that the best cider was made from the firm-fleshed winter varieties, such as Pomme Grise and Golden Russet.

The question of how local Horticultural Societies might aid the Provincial Association was discussed by J. M. Fisk, of Abbotsford, and a resolution was passed appointing a committee whose duties it would be to formulate a scheme for the organization of local associations and their affiliation with the Provincial Society. Bee keeping was treated by Gilbert Winter, and the President spoke interestingly regarding tomatoe culture.

A number of members took advantage of their proximity to Newport to visit the orchards of the veteran fruit grower of Newport, Dr. Hoskins. It was a pleasure to meet the Doctor and to look with him through his large orchards of selected hardy Russian varieties and native Vermont seedlings. Scott's Winter and Longfield were two striking varities in these orchards.

HOW TO GROW APPLES.

VALUABLE HINTS ON THE PLANTING OF ORCHARDS BY MR. R. W. SHEPHERD.

THE summer meeting of the Provincial Fruit Growers' Society, held at Stanstead Plain, was brought to a close on the 18th of August. At the evening session Mr. R. W. Shepherd, the well known pomologist of Como, read a paper on the planting of orchards, in the course of which he said:—

In the "good old days" of planting orchards in Quebec province it was thought proper to set the rows of trees only twenty or twenty-five feet apart. There are, in fact, few orchards of fifty years of age where the trees were planted at greater distances than twenty-five feet apart. The result of this mistake has been to produce orchards in which, as the trees grew, completely shaded the ground, they interlaced their branches with one another and became unfruitful, bearing fruit of small size and imperfectly colored. To mend matters the orchardist starts out to prune his trees, with an axe and saw, slashing and cutting right and left large branches in order to admit some light and air, the most necessary adjuncts to successful orcharding. All this work of slashing and cutting of branches is the result of the intense desire to plant out as many trees as possible to the acre—another proof of the shortsightedness and avariciousness of human nature. In this enlightened age, do not let us repeat the mistakes of our grandfathers. Let us understand first that an apple tree must have

PLENTY OF AIR AND SUNLIGHT

to produce perfect and well colored fruit. A tree of forty or fifty years of age standing in the open, in good, well cultivated soil, will bear as fine specimens of fruit as a tree fifteen years old. It is a common idea that the finest specimens of apples are grown on young trees; but give the old trees the same sunlight and air, with like cultivation and nourishment to the soil in which its far-spreading rootlets permeate, and you will see equally fine specimens of fruit.

In this age of necessary spraying of trees and thorough working among them, it is absolutely imperative that the new orchard trees be planted at greater distances apart than heretofore. Everyone who has tried to spray an old orchard knows how laborious the work is, and, generally, how imperfectly it is accomplished. In two orchards that I planted recently at Como, we set the trees thirty-three feet apart each way, i. e, thirty-three feet in the rows, and the same between the rows. I believe that for such varieties as St. Lawrence, Winter St. Lawrence, Canada Baldwin and others, even forty feet apart would be preferable.

FALL PLANTING.

There has been considerable difference of opinion as to the proper season to plant apple trees, whether in the spring or the fall. I have had good results with either. Let me give you the result of my efforts last fall and last spring. We all know, to our cost many of us, what a very severe winter the past one was to many old as well as young trees. Therefore, the planting of an orchard last fall was attended with considerable risk. About the first of November last, we planted one hundred and twenty-six trees of the following varieties: Fameuse, McIntosh Red, Rochelle, Canada Red, Scott's Winter. The soil had been well ploughed and

broken up, and the spot selected was dry, sandy, rich loam. Wide, shallow holes were dug. The trees were taken from my own nursery and very carefully planted; and the earth heaped up against the trunk of the trees, two feet high. This is absolutely necessary when planting in the fall, in order to protect the roots from frost, and at the same time it serves as a protection to trunks of the trees against the field mice. About the middle of December, we carted out manure and spread it six inches thick on top of the heaped-up earth. This was an extra precaution, against frost attacking the roots, and was suggested to my mind by the very severe winter weather beginning with little or no snow. It was well we did take this precaution, as no doubt this extra protection to the roots, given by the mulching on the top of the heaped-up earth, saved my trees from total destruction. Last spring, vegetation, we all know, in this province at least, was much retarded by the cold weather which lasted all through the month of May. The trees in my new orchard looked as if they had no intention of leafing out. When the nursery trees were almost in full leaf the trees in the orchard scarcely showed signs of budding out. But I was not alarmed. I knew that the roots, so deeply covered with earth and mulching, had not yet begun to feel the effect of the sun's heat. It was some time after the heaped-up earth had been levelled that the trees began to show signs of life, but after the copious rains in June and the heated term in July, followed by more rains, my trees have made wonderful growth. Of the 126 trees planted only six have failed to grow satisfactorily or have been injured by the winter so as to need replacing.

The orchard of 90 trees planted last spring (almost the same varieties as those planted last fall), has been quite, if not more satisfactory. The trees had been selected from those that had been taken from my nursery in the fall and very carefully healed in for winter. They have made very satisfactory growth since being planted. Fall planting can be successfully carried out if we take the necessary trouble to plant the trees as I have related.

In my own case, at least, I find it preferable and more convenient to plant in the fall than in the spring, because we are not so busy, and there is more time to do the work than in the midst of the rush of spring. I imagine that many farmers and fruit growers are similarly situated and have neither time to devote to the preparation of the ground nor to the planting of the trees; in such cases I would recommend fall planting. Perhaps, when time can be given, planting of apple trees in the spring is more desirable. But at the same time I firmly believe that fall planted trees, which survive the first winter (and with proper precaution, such as I have mentioned, in an ordinary winter with snow protection, there is scarcely any doubt about it) really

MAKE MORE RAPID GROWTH

the following summer than those trees planted in the spring. This is accounted for, I believe, by the fact that the shock of transplanting, which the tree must sustain, has been more fully overcome, and also the fact that the earth has been, through the action of the frost during winter, more thoroughly compacted around the roots and the interstices filled up than is the case when trees are planted in spring. We all know that spring-planted trees, the second season, should, and generally do, make good growth, which is owing in a great measure to the same cause, the compacting of the earth

around the roots the previous season; or, in other words, and in the language of the old Fruit-Grower, "the trees do not grow well until the roots 'get good hold' of the earth;" and this "getting hold" of the earth is more noticeable during the first season in fall-planted trees than it is with trees planted in the spring.

AN INTERESTING DISCUSSION

followed. Mr. J. C. Chapais (St. Denis, Kamouraska), said planting forty feet apart might be suitable for the district about the Island of Montreal, but it would not do below Quebec. The trees would die from want of protection. They must be planted closer together. He had tried fall planting, but his experience was the reverse of Mr. Shepherd's. Less than 5 per cent. of his trees succeeded. There were differences of climate in different parts of the province, which must be taken into account. No doubt Mr. Shepherd's rules would work well in his own district.

Professor Waugh (Burlington, Vermont), was in favor of fall planting, for the reasons Mr. Shepherd had given, which were well worth consideration. If the roots were carefully trimmed they healed and began to make growth during the winter.

Mr. Fisk (Abbotsford), thought that for the climate of his district spring planting was preferable. That had been his experience.

Mr. R. Brodie (Montreal), the president, was also in favor of spring planting. As to distance, in view of the cheapness of nursery stock, he suggested planting 20 to 25 feet apart, and then cutting down each alternate tree after 18 or 20 years.

Mr. Fisk—Yes, if you had the courage to do it.

Mr. Shepherd thought the branches would be interlaced by that time.

Mr. Barnard (Quebec), in 25 or 30 years' experience found close planting necessary for safety in places exposed to the wind.

Mr. Shepherd closed the discussion by reiterating his firm belief in air and sunlight.—The Gazette, Montreal.

FRUIT AT BREAKFAST.

FRUIT in some form should have a prominent place in every breakfast menu. Either the uncooked fruits may be employed in their season, canned fruit or sauces. All will be found appetizing, and all medical testimony bears witness to their value as an article of diet. More especially where there is a dry, disagreeable, slightly feverish condition of the stomach, the cooling action of the fruit juices will be found most agreeable and refreshing. The action of the fruit acids is especially beneficial. All persons require more or less acid in their food or drink, to meet the requirements of the system. If this comes from the natural acid of fruits, it does away with the stronger and less wholesome acids of pickles and other vinegary condiments over indulgence in which unquestionably does harm to many a stomach.

A writer on this subject recently declared that "for a breakfast dish nothing is nicer than sliced oranges with cocoanut. Some add sliced bananas to this, and if heavily sprinkled with powdered sugar you will abandon hominy, chops and steaks, and breakfast exclusively on this dainty dish which French people have justly called "Fruit de Paradis." The writer would not go to the extent of urging an exclusively fruit diet for breakfast, feeling that in many cases there should be "substantials" added in more or less generous measure; but that fruits should have a place and a large one, at every breakfast cannot be denied.

STORING AND PACKING FANCY APPLES.

IT is evident that our apple growers must adopt new methods, if success is to be expected. To be successful, fruit growing must become a science, and the best methods followed from start to finish, and this can only be done by the man who makes fruit growing a business. He must first grow only the very finest varieties for export, and then he must cultivate, thin, spray and prune, so that only fancy stock is allowed to mature. And when he has learned the art of growing fancy fruit he must also learn to grade and pack the same. The first requisite, of course, is a warehouse, in which to do the work. For winter apples an ice storage house, such as is required for storing summer apples, peaches and other tender summer fruits is hardly necessary, for in autumn the temperature is usually low enough; and, therefore, the only requirement is a frost proof building in which the fruit can be stored and packed during the winter for shipment as fast as may be convenient, according to the requirements of the market.

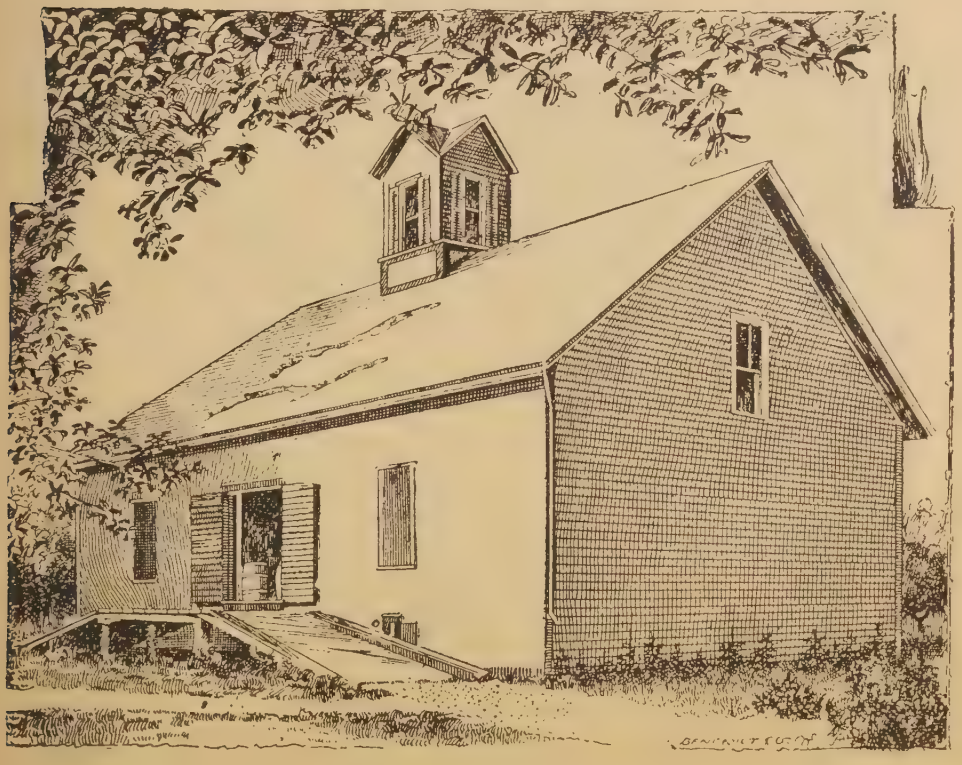

FIG. 1225.—KENNEY'S APPLE STORAGE HOUSE.

There are several of these frost proof apple houses in our province, and one of them belonging to Mr. Walter Dempsey, of Trenton, has been pictured in

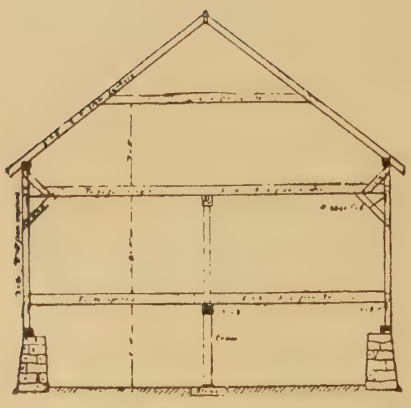

FIG. 1226.—CROSS SECTION OF APPLE HOUSE.

these pages. The American Agriculturist in a recent issue shows one in Grand Isle Co., on Lake Champlain, Vermont, and speaks of it as follows :—

"One of the largest orchardists, Mr. T. L. Kinney, has been very successful in commercial orcharding. One of the factors is an apple storage house shown in the illustration, which enables him to hold his fruit and put it on the market whenever he wishes. The house is simple of construction, and cost him about $1,500. The lumber bill amounted to about $445, and undoubtedly the same building could be constructed much more cheaply at present. Mr. Kinney says that he has 'practiced keeping apples for several years and the venture has always been successful. The fruit must be well grown, free from fungous diseases, and insect injuries, and must be carefully handled. I prefer to sort before putting into the house. The market calls for standard Vermont stock in winter, and this should not be sold at any other time. My method of storing is much cheaper than keeping the fruit in large cities and is much better for the fruit.' During the winter of 1896 97, Mr. Kinney's apples kept well and sold in the New York city markets during February and March, 1897, at from $1.50 to $4 per barrel, thus giving a handsome margin.

"There is no question but that apple culture in this section, with a private storage house is a brilliant success. (Vermont experiment station, Bulletin 55, F. A. Waugh). It will not be many years, according to the present prospects, before any man who attempts to grow apples on a considerable scale will have a private storage plant.

"The low wagon used for handling apples was made by one of Mr. Kinney's men from the trucks of a threshing machine horse power. It costs practically nothing, but is very useful in handling apples in transferring them from the orchard to the storage room. It is much more convenient than the stone boats which are commonly used in the neighborhood for this purpose."

FIG. 1227.—LOW APPLE WAGGON.

Flower Garden and Lawn.

NEW HYBRID GLADIOLI.

FIG. 1229.—GROFF'S HYBRID GLADIOLUS.

MR. H. H GROFF, of Simcoe, has very kindly sent this office a bushel of the most gorgeous colored gladioli spikes imaginable. The wonderful mingling of colors and the size and beauty of the florets, combined to make an exhibit well worthy of mention. The accompanying cut shows one of Mr. Groff's new hybrids, of which the florets are immense, equaling lilies in size.

He writes: "Am glad the flowers pleased you, but one basket could in no way represent my collection. It is my hope to exhibit at Toronto in 1898, the best quality and variety ever shown in America and I can do it. Beside the freak referred to in the paper last sent, I have a trumpet for hybridizing blooming at same time and later, is some pure white seedlings on which I have been working for years, and have now fixed a strain coming true from seed, giving a quality of pure writes, practically unknown."

COVER THE BULB BED.

Be sure to give the spring blooming bulbs a nice warm winter blanket of leaves, litter from the stable, or brush, or a combination of all, and do not be in a hurry in spring to get them out of their winter clothes. Don't rush out the first warm day and clear away all the brush and litter just because it is unsightly looking. The crocus and snowdrop will not need so warm a covering as the other bulbs and can be uncovered earlier in the spring. But from the tulip, hyacinths, etc., gradually remove the covering, leaving the finest of the stable litter on the beds permanently.—Vicks Magazine.

Fig. 1228.—An Interesting Front Garden in England.

AN INTERESTING FRONT GARDEN.

MR. EDWARD OWEN GREENING, of London, England, edits a rather attractive Annual for amateurs, entitled "One and All" Gardening. Last year a competition of photographs of gardens of taste was instituted, and in this way Mr. Greening received a large number of photographs of beautiful gardens, which are full of suggestions. These were used as illustrations in the Annual for 1897 and one of them we reproduce for our readers. In this one the flowers and shrubs are disposed in a very tasteful manner, and the front of the old fashioned house is made picturesque with beautiful creepers. The editor sees nothing in this to criticise unfavorably except the "somewhat promiscuous statuary and vases that catch the eye directly you look at it. If these were removed, the picture would be without a blemish. The picture teaches us the great value of creepers for covering the bare walls and softening the harsh outlines of the building, also how much more effective hardy flowers look when they have a back ground of shrubs. The plant seen in the right of the immediate foreground is evidently the Gardeners' Garter Grass (Phalaris arundivacea variegata), an old fashioned but very beautiful plant when growing by itself or in company with other hardy plants."

THE FAILURE TO FRUIT.

THE fruiting of an orchard is the end of its culture, and everything should tend to this end. A failure to fruit at proper age, and in the right season, is a sure indication that something is wrong, and that something ought to be done. There are a number of cases for a full-grown tree not fruiting, and it will be a good plan to investigate, ascertain the cause, if possible, and apply the remedy.

In some cases trees may have too much head and will exhaust themselves, nourishing their foliage at the expense of their first buds, but this is the exception. Generally a tree lacks plant food rather than an over-supply, and the application of well-rotted manure will remedy this. Sometimes there is a lack of lime or potash in the soil. Bone-dust or wood ashes make a good fertilizer when mineral elements are lacking, as there may be an excess of moisture in the soil and drainage may be the necessary remedy. Pruning and thinning out may be necessary when there is an excessive growth of top. The soil may have become packed and hard, so that the tree cannot make as thrifty a growth as it should, and cultivating or digging about the roots may be necessary. With proper care the tree can be made to bear good fruit, quality being of more importance than quantity, and if, after proper remedies have been tried, the trees fail to yield good fruit, the quicker it is cut down and another one is planted in its place the better. Allowing a tree to overbear one year will be the cause of its not bearing the next. The tree so exhausts itself in maturing the excessive yield that a rest is required in which to recuperate. Thinning in good season is the remedy for this, while a better grade of fruit is secured.—N. J. Sheppard, in Farmers' Voice.

HARDY PLANTS THAT WILL STAND THE DRY WEATHER.

THERE is a great variety of herbaceous plants suitable for planting in a sandy soil and which will thoroughly stand the drought. Any of the varieties of the Helianthus or perennial Sunflowers are very fine. There is scarcely a position in which these plants refuse to grow. When established they are very effective, forming rich masses of golden yellow blossoms during the summer and early autumn. *Saponaria officinalis* is another free-growing and free-flowering plant. *Gypsophila paniculata*—this is, or would be, when more widely known, an indispensable plant; it possesses a grace not found in any other perennial, and attracting the eye of everyone. It forms a symmetrical mass two to three feet in height and as much through, of minute pure flowers, forming a beautiful gauze-like appearance. For table decoration it is exquisite, and some most lovely effects can be produced with it.

Lychnis Vespertina, fl. pl., called in some of the American catalogues *Viscaria alba*, which is wrong; but I may mention here that is synonymous to *L. diocea alba, fl. pl.*, or commonly called in England the double white Campion. It forms a pyramid of branching stems 3 feet in height, bearing from June to September, innumerable flowers as large as a dollar piece. These are exceedingly double, pure white, and fragrant, somewhat resembling a white pink.

Bocconia cordata, this is a noble perennial, beautiful in foliage and flower, and adapted for the shrubbery, borders, centre of beds, and as a specimen plant on the lawn. It will grow in any soil, attaining the height of from two to four feet, flowers in panicles, or graceful, loose-like spikes of minute flowers. I saw some fine specimens of this in Mount Royal cemetery, Montreal, and Mr. Ramsay informs me it is quite hardy in his garden at Westmount, Montreal.

Galega officinalis alba.—This is another excellent free-flowering border perennial, that is capable of enduring a good deal of drought with impunity. Some fine specimens of it have been flowering for some time with the greatest freedom.

There is also a much finer variety, which I intend to introduce to this country next spring, being quite hardy in the north-eastern parts of Germany. I am inclined to try it here; it bears much closer trusses of lilac flowers, far superior to the common or white form; they are most suitable for borders, beds, or groups.

Chrysanthemum maximum (Ox-eye Daisy).—This plant would soon become a favorite in every garden when more widely known. It is free-flowering, a strong grower, reaching the height of 2½ to 3 feet, forming a large bush, which is literally covered with large pure white flowers of great substance and very symmetrical. For cut-flower purposes it is of the highest value, as the flowers last over a week when cut. Succeeds well in good rich sandy loam; needs slight protection in winter.

Heuchera Sanguinea.—Of all the interesting perennials that it has been my fortune to handle, none has given me such pleasure. Its dwarf, compact, branching growth, robust constitution, and the matchless and striking color of the flowers, render it one of the most important and valuable for vases, epergnes, etc. It grows about two feet high; the

flowers are produced in loose graceful spikes, and borne in extravagant abundance, of a light coral scarlet; when seen in full sunshine, dazzles the eye with its brilliancy. This is quite hardy round Montreal. Some fine spikes were exhibited at the last Horticultural Society's show by Mr. W. M. Ramsay, Westmount.

Hamilton. FRANK BRUNTON.

YUCCA AND CEREUS AT PICTON.

FIG. 1230.—YUCCA.

Mrs. E. A. Yardwood, a member of the Picton Horticultural Society sends us two fine photographs of a Yucca and Cereus, grown by her, together with the following letter:

"Reading your request for photographs I inclose a couple, which if not useful for your journal you will please return to me. The picture of the 'Night Blooming Cereus,' was taken in my home several year ago. As the flowers do not open full until late in the evening the photograph was taken by lamps being placed near it, I think between eleven and twelve at night."

In this connection the following clipping from Farm and Home about Hardy Yuccas will be of interest:

"Few hardy plants have a more stately appearance when in flower than the popular Spanish bayonet or Adam's Needle, one or more species of which may generally be found in the majority of gardens, either as isolated specimens, planted in masses, or associated with rock work or water. Not being at all particular as regards soil, yuccas are admirably adapted for any of the above named positions. The common Adam's Needle (Y. gloriosa) and its varieties are probably the hardiest and most robust. Old plants of this species grow to a height of 6 ft. or more, and when branches from heads nearly as much in diameter. Yuccas do not flower at any definite age or size; one in a group may produce a panicle this year, while others beside it under precisely similar conditions may not do so for a long time."

FIG. 1231.—NIGHT-BLOOMING CEREUS.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 4,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

A SHIPMENT OF PLUMS, PEARS AND TOMATOES is being made to Great Britain by Mr. G. E. Fisher, of Burlington, by steamer Numidian. Should these experiments prove a success, a fine export trade in Canadian fruit will soon be developed.

THE FIRST SHIPMENT of Canadian tender fruits by cold storage left Grimsby on Tuesday, the 7th, to be forwarded by steamer Merrimac to London, via Bristol. It consisted of 890 cases of Bartlett pears, Crawford peaches and tomatoes, each case containing about a bushel of the choicest fruit. Mr. J. W. Robertson examined the fruit at Montreal as it was loaded, and found it in good condition, but some cases of peaches were too ripe, and the pears not graded high enough. The arrival and sale of this fruit in London, England, will be watched with great interest.

THE ENGLISH FRUIT MARKET.—Messrs. R. Marks & Sons, of Leeds, quote Williams (or Bartlett) pears $1 per case of 48, and tomatoes at 8 to 10 cents a pound.

THE FIRST COLD STORAGE SHIPMENT of fruit to England was photographed by Mr. E. S. McCully, Grimsby, the picture showing drays of cases, the loaded car, the shippers and the warehouse.

MAGNIFICENT GLADIOLI.—On the 29th of Aug. we received a large basket of cut blooms of Gladioli, huge spikes of the loveliest colors, enough to give one a mania for growing this flower. How few realize the possibilities before one of Mr. Groff's scientific turn, who by hybridizing can produce such endless shades of rich colors, both plain

and variegated, and such huge blooms. The accompanying photo represents one of Mr. Groff's hybrids, and is a study by itself, while its grand size equals that of a tiger lily.

ERRATA.—On page 329, under section of apples read Yellow Transparent, not Early Harvest. And on page 349, for C. R. read C H.R. The article was written by Mr. C. H. Roberts, Secretary Paris Horticultural Society.

MCCONNELL'S SEEDLING peach is a fine free stone, with yellow flesh and fine quality, ripening about season of Early Crawford.

SOME BEAUTIFUL CANNAS were brought us by Mr. Frank Brunton, of Hamilton, among them Queen Charlotte, Chicago, J. D. Cabos, Italia, Austria, and Alba Rosea.

THE AMERICAN POMOLOGICAL SOCIETY held its 25th session the first week in Sept., at Columbus, O. It is proposed to form a scheme by which this old Society shall co-operate with the U. S. Pomological division of the Department of Agriculture. The Hon. P. J. Berckman declining re-election, Mr. C N. Watrous, of Iowa, was elected President. Mr. Craig, of the Central Experimental Farm, was in attendance, and read a paper.

RICHER THAN THE KLONDIKE is the heading of an article in the Weekly Sun, regarding the Niagara Peninsula. We are willing to take all the advertising the Sun chooses to give us gratis, but when $2,000 is mentioned as a sample of profits from one acre in a single year, we think it time to speak and say such talk is entirely misleading. The fact is that the low prices of fruit in 1896 and 1897 have been so discouraging that many growers would like to give up their business entirely, having been compelled to borrow money for current expenses. If the experiment of exporting our tender fruits to Great Britain is a success, then we will have great hopes for the future of the fruit industry in Canada.

THE PROVINCIAL FRUIT CROP is referred to in the following terms by Bulletin 62 of the Ontario Bureau of Industries: The supply of apples will be far below the average, as might be expected after the immense yield of last year. In a few instances large yields are spoken of, but a considerable number of correspondents report the opposite, and too frequently mention is made of scab. Of the standard winter varieties the Northern Spy has done best. Pears will give a better yield relatively than apples, but mention is made here and there of the blight. Plums suffered considerably from curculio and rot, but many speak of large yields, and the season has been a good one for careful and intelligent growers. Peaches are yielding heavily in Lincoln, although there has been a tendency to rot among some early varieties. In Essex and other counties this fruit has done very poorly. On account of the ravages of black-knot comparatively few cherry trees have been left in the Province, but as a rule these have been loaded. Several correspondents complain of the non-enforcement of the law governing black-knot in plum and cherry orchards. Grapes promise a fair to good yield, although in many quarters threatened with mildew on account of the damp season. This crop is reported to be a week or two late. In most sections of the Province small fruits were abundant, raspberries especially giving a magnificent yield.

THE CITIZEN (Ottawa) quotes Mr. Robertson as saying :—I was able to arrange for the sale in Great Britain for the trial shipments of peaches, pears and grapes, which are to be sent from the Niagara district. For the first year these trial shipments will be sent only, or mainly, to Covent Gardens, in London, and to the fruit bazaar, in Glasgow.

I saw pears from California arrive in a very good condition at Covent Garden. They were sold at excellent prices, and I am sure that the Canadian pears, of higher flavor and rather finer quality, can be delivered in equally good condition.

Since I returned I visited Grimsby, Ont., inspected the cold storage warehouse, and had a conference with the fruit growers who have agreed to furnish fruit for these trial shipments. There is an excellent crop of Crawford peaches on the trees, a fine and unusually heavy crop of Bartlett pears, and the promise of a very good crop of grapes. The fruit growers at Grimsby have procured a quantity of suitable packages, and a first trial shipment will be sent from there next week. Each fruit will be wrapped in tissue paper. They will be packed in comparatively small trays, holding from three to five pounds each, and these will be put in crates holding about twelve trays each. The outside cases or crates, are constructed to permit of thorough ventilation. The fruit will be cooled in the cold storage building before it is put in the refrigerator cars ; a special chamber will be provided on the steamships, and every reasonable precaution will be taken to see that the fruit is landed in good condition in London and Glasgow. Full information of the prices obtained, etc., will be published for the benefit of the fruit growers in Canada, and I am confident that a large and profitable trade can be developed in the shipment of these fruits to Great Britian.

THE U. S. apple exporters say that, from the reports so far received, the crop in New England is below an average, especially winter fruit ; that in New York there is less than an average crop along the lakes and a fair crop in the Hudson River Valley. In Virginia a fair crop, but very light in the Ohio River Valley. Missouri, Arkansas, Kansas and Iowa promise an average crop. Michigan and Nova Scotia are below the average. Baldwins are reported light in all sections of the United States, and the larger part of the crop consists of russets and green varieties. This is bad for the exporter, for the red varities take best in Great Britain.

PROPER HANDLING OF GRAPES.

Grapes, like other fruits, need to be carefully handled to bring the best prices. The vines need to be gone over frequently during the ripening season, gathering only those with full color, because grapes do not, like other fruits, co'or after being gathered. The bunches should be cut off with a pair of scissors, and so handled as not to disturb the bloom. Ordinary varieties may be at once packed from the vines into the basket that is intended for sale. Choice varieties should be gathered into shallow trays or baskets, in which they should stand a day or two on shelves in the fruit house, and then repacked By this treatment the stems will wilt, and the bunches will then keep without molding and pack more closely than when green.

Our Affiliated Societies.

WATERLOO.—The Weekly Telegraph, Waterloo, gives the following account of the Third Annual Exhibition of the Waterloo Horticultural Society:—

The Third Annual Horticultural Show under the auspices of the Waterloo Horticultural Society, opened in the Waterloo Town Hall, on Tuesday afternoon, Sept. 14. The displays are the finest since the inception of the Society, indicating that success has marked the efforts of the local horticulturists. The interior of the hall is a veritable flower garden, and the fragrance of the numerous blooming specimens is extremely sweet. The exhibits are displayed in such a manner so as to command a perfect view, which reflects much credit on the ladies, who supervised the arranging. From a collective standpoint the show is one of the finest ever witnessed in Waterloo county, and shows what an interest Waterloo people take in the culture of flowers. An inspection of the exhibits revealed the fact that there is a deficiency in the quantity of Gladioli, but a decided improvement in the quality. The most beautiful display is a collection of Campanulas, which surround the stage. The specimens are very high and their beauty is revealed in clusters of large, bluish blooms. The collection of Begonias is also very large, and of the choicest varieties, comprising both foliage and tuberous-rooted plants. Probably the rarest and most highly prized plant is a specimen of the "Old Man Cactus," which presents a woolly appearance. Exhibits of fruit and vegetables are also made.

The stage resembles a mound of blooming flowers, and the fragrance impregnates the whole building.

The Waterloo Horticultural Society was formed three years ago with a membership of 55. Since that time its membership has steadily increased, and at the present time there are connected with it 155 enthusiastic horticulturists, all of whom are amateurs. The Society is under the auspices of the Ontario Fruit Growers' Association, and it receives Government assistance. The Society was formed for the purpose of increasing local interest in horticulture; that this has been accomplished the elaborate displays at the show attest, as does also the increased membership of the Society.

The show affords no advantages except to create a deeper interest in the work, as no prizes are awarded. All members work jointly. The show will be continued this evening, and residents of the Twin City who are fond of plants, should not miss this excellent opportunity of augmenting their knowledge of horticulture.

SEAFORTH.—On Monday, Sept. 6th, the First Annual Flower Show of the Horticultural Society was opened and it continued until Wednesday the 8th. The Society intended to hold their exhibition in the Agricultural Hall, but owing to that building being burnt, they chose a vacant store in Cardno's block. The hall was prettily decorated with flags, bunting, emblems, evergreens, Goldenrod, grain and autumn leaves. The plants in pots and cut flowers were mostly annuals, but beside these there were some very rare tropical plants, namely, a Banana in fruitage, a Screw Palm, two Orange trees with fruit, a Chinese, Hibiscus in bloom, a very large Balsam and a Japanese Fern. Out of this list, probably the greatest novelty was the Banana tree which was about 5½ feet high, with quite a large bunch of bananas and a blossom. Judging from the profusion and the variety, the Aster seemed to be the favorite annual, for cultivation with the people of Seaforth, as by far the largest exhibit was made of that flower. The Gladioli and Dahlias ranked second, as to number and variety. The children's exhibit was not as large as expected by the members of the Horticultural Society, as a large quantity of the best seeds that could be bought, were purchased by the Society and distributed to the school in the spring. Some of the members of the Clinton Horticultural Society kindly sent down some cut flowers to the Seaforth Society, to give the people here an idea how the Clinton florists compare with the Seaforthites. It is very encouraging to the members of the Horticultural Society, to see the large number of people who are taking a lively interest in the show. This will in all probability increase the number of names on the membership roll for next year.

We omit the list of awards made, as being only of local interest.

The show was to have been closed at 5 p.m. on Wednesday afternoon, but on account of being such a success and so many people wanting to see the flowers, it was held open till 9 p.m. on Wednesday evening. On that evening a night-blooming Cactus opened about 8 o'clock and added greatly to the attractions of the show. The building was lighted by the new Acetylene gas. The members of the Society wish to compliment Mr. Donald Stewart, of Brussels, for the just and effective way in which he performed the difficult task of awarding premiums to the different plants and flowers.

THE FLOWER SHOW AT NAPANEE. — The members of the Napanee Horticultural Society provided a great treat for our citizens and scored a great success in their grand display in the curling and skating rink last Friday afternoon and evening. The society has been in existence but a few years, but in that time it is truly marvelous the strides they have made, and the interest they have created in the culture and love for flowers in our midst. Each year the society gives a display, and each successive exhibition has proved a marked advance over the preceding one. Last year the town hall proved too small for the proper display of the large collection of plants, and this year the management conceived the rather risky experiment of showing in the large rink. To transform the bare and unsightly space into the scene of beauty presented on Friday night was no small task, and only those who planned and labored in its accomplishment, know the work and anxiety expended to secure this end. Our citizens are greatly indebted to the society for the work they have done and are doing in our midst, and it is to be regretted that all of our citizens had not availed themselves of the privilege of being present.

The President, Mrs. Wilkinson, and her staff of willing assistants are to be congratulated on the success which attended their efforts to make the show such a decided success.

On entering, the scene was indeed a surprise and delight to all; and where all the flowers and plants came from was an equal surprise. The display was just a little out of our reporter's line, and too extensive and bewildering to describe in detail. However, a brief sketch where so much was to be seen and so much taste and labor were represented, is demanded.

The sides, ends and rafters of the large building were gracefully draped with flags and jubilee bunting in red, white, blue and yellow. Along the two long sides of the structure were arranged shelves, on which were displayed cut flowers, in glass and vases, and abundance of grasses, ferns, vines, etc., filling the spaces and backgrounds. At the south end, on entering, was a mammoth sunflower, stretching up 15 feet plant. This end of the building was banked up with rushes, golden rod, grasses, vines, etc., and above all were a crown and the floral letters "V.R." of daisies draped with Union Jacks, the letters and crown the handiwork of Mrs. Uriah Wilson.

The northwest corner was banked with ferns and vines, and across the north end, with the Union Jack for a background, were the initials, "N.H.S.," in letters about three feet high, constructed of Sunflowers. Here also was an ingenious piece of floral work, a beaver, life-size, made entirely of red Sumac berries, the creation of Miss Ballantyne. In the northwest corner was a fairy bower, which we will describe later.

Along the east side, besides cut flowers in reckless profusion, were two bicycles, a ladys' and gentleman's, beautifully decorated with flowers, scarcely a vestige of the framework being visible.

The centre of the space was devoted to four large platforms, eight feet square, on which were displayed potted plants, common and rare, arranged in pyramid shape, the foliage and colors being arranged with rare taste. Two of these tables were arranged by Mr. Thos. Symington, to whose utiring energy and good taste much of the success of the show was due. The other two contained elaborate displays by Mr. James Harmer and Lloyd & Hill, florists. In the centre were also distributed many large vases, filled with foliage and bloom.

The centrepiece for the collection was a "Ferris Wheel," designed and constructed by the Society's secretary-treasurer, Mr. J. E. Herring. The height of the structure was 11 feet, and the wheel itself was made to revolve, carrying eight suspended boxes, each filled with brilliant flowers. The entire framework was tastefully decorated with green and Goldenrod, flags, etc, and the whole piece was considered very handsome. The decorations were effected by Mrs Burritt, Mrs. W. K. Pruyn, Mrs. J. E. Herring and Mr. Cowan.

A crowd was always gathered before the exhibit in the northeast corner of the building, which represented the handiwork of Mr. and Mrs. W. S. Herrington. The corner was cut off by a partition of tall Broom-corn and Goldenrod, a space being left in the centre through which to view the *piece du resistance* within. Over this space was draped a pair of lambrequins made from Millet and joined at the top by a heart of crimson Verbenas. Looking through this unique and handsome entrance, one saw the exhibit proper, which was a model of a modern battle-ship, constructed wholly of flowers, and complete in the minutest detail. This was a study in itself, and represented many hours of labor. The hull was of white Verbenas, the deck of Asters, and a border of tricolor around the entire ship marked the water-line. Guns of Phlox protruded from turrets of Marigolds and Calliopses. The fighting towers were made of Candytuft, Pinks and Larkspur. The Union Jack with the colors accurately arranged floated over the stern, while an anchor cunningly wrought of tiny Forget-me-nots hung over the bow. The whole floated upon a sea of green. The walls of the building behind this exhibit were covered with green vines, through which could be seen here and there the golden face of a half-hidden Sunflower.

NOTES.

The band during the evening played a number of selections, and added materially to the pleasure of all present.

A lemon and fig tree were amongst the curiosities of the exhibition. Mr. Walter Ross, Sec.-Treas. of the Picton Society, showed a full-sized lemon grown by him. Mr. Ross was present and was greatly surprised at the beautiful display made.

The attendance was very good, about six hundred taking advantage of the opportunity to witness the progress the members of the Society are making, and their taste in massing, decorating, etc.

The function was a brilliant one, the great building being brilliantly lighted with incandescent lamps, Chinese lanterns, etc. The throng, young and old, gayly dressed, criticising, chatting, inspecting and enjoying the treat, promenaded to the stirring music of the band until 10 o'clock, when the exhibition was closed.

Strangers in town and many of our citizens, who had no idea of the strides the Society is making, were surprised and delighted with the display. Many new members should now be added to the N. H. S.

The Society and its energetic President deserve a public vote of thanks.

The beaver and letters N. H. S., were the work of Miss Ballantyne and Mr. W. Waller. The crown and initials V.R., were contributed by Mrs. U. Wilson.

TENTH ANNUAL REPORT OF THE CHEMICAL DIVISION OF THE DOMINION EXPERIMENTAL FARM, 1896.

A copy of this report has just been received and we presume, therefore, that it is now ready for distribution among the farmers of the Dominion. There is much in it of interest and value to every farmer.

It would appear that the past year has been an exceedingly busy one for chemist (Mr. Frank T. Shutt), for the forty odd pages of his report are crowded with results of analyses, and deduction therefrom, of soils, fertilizers, cattle foods, well waters and a host of other materials more or less closely related to agriculture.

Among what appears to us as the more important features of this work, we notice the following :—an exhaustive account of certain typical soils in British Columbia. Their relative fertility is noted and suggestions made for their profitable treatment.

The economic improvement of muck soils is the subject of a chapter that will be found most useful to all farmers having muck deposits on their farms. Mr. Shutt has been able to demonstrate the value of woodashes (potash) and lime for these soils. The results of pot experiments show a large increase in the yield from such treatment. A well executed cut of the pot experiments illustrates this chapter.

Many analyses of "muds," "mucks" and substances of like character, occurring naturally, have been made. It has been shown that many of these deposits are of a highly nitrogenous character, while others are useful as "amendments" rather than as fertilizers. Instructions are given how to make composts with swamp muck, and attention also is called to the value of this material as an absorbent in and about the farm buildings.

Some instructive results obtained by rotting manure are given. They show that even under fairly good conditions there is considerable loss of fertilizing material. Manure must be kept compact, to exclude the air, and moist (not wet) if the loss during fermentation is to be minimized.

Some valuable experiments regarding the use of clovers as green manures have been made. The data shows the extent to which the various clovers enrich the soil with nitrogen. This chapter contains information of the greatest importance to every farmer who is anxious to obtain an increase of fertility of his land.

A large number of materials of fertilizing value, such as woodashes, fish meal, etc., have been analyzed and their composition is stated in plain language.

On the question of cattle foods, the Chemist presents his results on the "Chemistry of the Corn Plant," an important piece of work which clearly indicates the changes in food value that take place during the growth of the crop. Scientific data are given to show that the corn should be allowed to arrive at the "glazing" condition before it is harvested.

The results of the Chemist's examination of waters from farm homesteads is anything but encouraging. They show that on many soils polluted water is being used. Mr. Shutt points out the great danger to health of both man and beast from the use of a contaminated water supply.

All thoughtful farmers, we believe, will be interested and benefited by a perusal of this report and we should therefore advise them to apply to the Chemist of the Experimental Farms at Ottawa for a copy.

Question Drawer.

Corn Smut.

967 Sir,—What is the cause, and what the cure for Smut in Corn.

A Subscriber.

Reply by Prof. T. A Patterson, O. A. C. Guelph.

Corn Smut (*Ustilago mayadis*) is a disease of corn, the remedies for which must be largely of a preventive nature. Professor Kellerman states that the mode of infection if not thoroughly understood at present and therefore we cannot be sure of the most rational remedy. The fact, however, that smut thrown or left upon the ground produces the disease in succeeding crops, and the apparent probability that infection may be brought about by the distribution of the spores, or sporidia, indicate (1) that rotation of crops should be practiced, and (2) that as much of the smut as possible should be destroyed before it comes to maturity. The smut balls should be collected and burned before the membrane covering them bursts, and thus prevent the spores from escaping. Do not feed smutted corn to cattle as the spores will be distributed in the manure. The best remedy is to adopt a system of rotation. By planting corn in different ground each year, and sowing unaffected seed the losses from smut will not be appreciable.

How to Grow Sage.

(See Question No. 958.)

I have been growing herbs for the last ten years for the retailers, and have found no difficulty in growing sage. I simply set up ridges 30 inches apart, rake the ridge down flat. This will remove stones, sticks, or any matter that is on the ridge that would impede the drill. Use Mather's hand seed drill, and sow at the gage. For sage keep free from weeds. With new seed a crop is certain.

N. B.—Have several hundred dozen of herbs for sale.

Wm. Spendlow.

Billing's Bridge, Ont.

The Worden Grape.

968. Sir,—Will you please inform me through The Canadian Horticulturist what year the Worden grape was sent out by the F. G. A. I think it is as much as fifteen years ago. I have one sent me by the Association, and I believe this grape to be the king of all grapes for this section of country. I have only the one vine, and it has never failed any year to produce a large crop of grapes. It has been growing side by side with the Concord, and the Worden gives me about as much grapes in one year as the Concord does in four. The Concord fails here in some years to get ripe, but the Worden never fails to get ripe; it ripens its fruit two or three weeks earlier than Concord. The vine is very heavily loaded with fruit this year, and there are some bunches ripe now at this date. It starts late in the spring and escapes late frost. I let it down on the ground in the fall, and turn some brush on it to catch the snow; this is about all the winter protection it gets. I have one vine of the Niagara, it is just commencing to bear, it is well loaded this year, I think it will be a success here.

A. Bridge, *West Brook.*

Grape Jam.—Separate the skin from the pulp of the grape, putting them in different dishes, then put the pulps in the preserving kettle with a teacupful of water, and when hot run them through a colander to separate the seeds, add the skins to the pulp and weigh, allowing three-quarters of a pound of sugar to each pound of fruit, and just sufficient water to keep them from burning. Cook slowly for three-quarters of an hour and bottle.

Open Letters.

Gooseberries in Simcoe Co.

SIR,—I have read the letter from Mr. Stanley Spillett, in the August number, and feel sorry that his gooseberries turned out so bad this year, as he has given us some good advice about mulching, etc. I have two kinds of gooseberries growing in North Simcoe; I do not know their names, but they are both large and prolific, and there is no sign of mildew on them. In the spring I put a small half ounce of bluestone in a large bottle and fill up with water, and when I spray with Paris green, I put in a small tablespoonful out of this bottle to the pail; perhaps that may have something to do with keeping off mildew.

ROBERT H. PLATT.

Insect on Gooseberry and Currant

SIR,—In the August number of the HORTICULTURIST, the Rev. W. A. Adcock, of East Angus, Que., writes about a small insect which has blighted his gooseberry and currant bushes, and upon which Paris green had no effect In Quebec there is quite a lot of tobacco grown, and if he would get some of the dry stalks, which are no good for other use, and cut them up and make a decoction in a pail or barrel of water, and as soon as he would notice the leaves turning dark, give them a good spraying with this tobacco water, I think he would settle them for the season; and if done for two or three seasons, would exterminate them altogether.

If I am mistaken in the insect and the recipe does not answer, then try spraying with kerosene emulsion.

ROBERT H. PLATT.

Whitesmith Gooseberries.

SIR,—The illustration of Mr. F. W. Porter's gooseberries, given on page 296 of the HORTICULTURIST of last year, taken with the writer's statement that "The samples of Whitesmith were so fine that we photographed one branch for the public benefit, *exactly the size of the original*," (the italics are mine, T. B.), showed—as I then thought—the berries much too small for a good sample as grown here; and if so, then the picture did not do that excellent variety the justice it so well merited; but the season was then too far advanced (about 15th September) to compare the picture with our specimens; but now, when we can do so, the superior size of the fruit grown here is apparent. As big gooseberry stories, like fish stories, do not receive much attention without good corroborative proof, I herewith send one dozen berries taken from a one gallon measure of fruit that was being cleaned for market (and the sample was not thereby sensibly injured), which weighs 5⅛ ounces. Compare these with the size of the berries as shown on page 296.

By the way, Mr. Editor, might it not be a good idea, now that so many persons are interested in growing this kind of fruit, for you to ask growers to send you samples of their berries another year, so that you might compare the fruit grown in several districts? You could ask for a *given number* of berries from each and have each lot accurately weighed. Or, you could ask for a *given weight* (which you should verify), and then count the berries. In the first case, the number weighing most would be the best, and in the second case, the best sample would be the least in number.

THOMAS BEALL,
Lindsay, July 27th, 1897.

The Gooseberry.

SIR,—We often read of the success and failure of those who are raising gooseberries, and to the average reader it would seem almost useless to venture into this branch of fruit growing, as the present prices realized by some would hardly pay for the labor spent on them. As to the real cause for this widespread difficulty, it is hard to determine, but as each grower has a theory of his own, and no doubt the result of success or failure is to some extent in the grower himself.

I do not think that there is an over-production of this fruit, anyway, not in this section. However, as readers of this Journal, let us reason the matter, in a brief consideration. We all know that all fruit must be ripe, or nearly so, to be fit for using, and especially the gooseberry.

Just think to harvest the raspberry before it is ripe, what it would taste like; much worse, we think, the gooseberry. I do think it is perfectly apparent, upon a moment's thought, that the gooseberry is gathered too soon in many parts; and I am not surprised we have no market for this fruit. Nearly all of us know the delicious flavor of the gooseberry at its best, and for pies, tarts, etc., it has no equal.

Now the result is in pressing this fruit on the market too soon. We discourage buyers of this article or any other fruit, and consequently they have no desire for it. I have known Downing, Whitesmith and others pushed into our market here three and four weeks before they were ripe. Think of this; would you buy them?

No doubt we may improve in other directions in this matter, but let us improve in this.

E. HERSEE, *Woodstock.*

❋ The Markets. ❋

The Foreign Apple Market.

Messrs. L. H. Williams, of Liverpool, write under date August 14 :—

Apples. — In the Home Country on the whole the crop is exceedingly light, and from the Continent some few districts report fair crops, while others are a complete failure. Altogether we believe the total yield will be considerably below average ; but as the apples grown here do not compete with your fine stock, we can strongly recommend shipping in moderate quantities right through the season ; and while we would advocate your sending prime fruit, we would most strongly discourage exporting inferior grades.

Messrs. J. McKittrick & Co., of Liverpool, write :—

We have delayed our Annual Report this season until we have had some information from your side as to the probable size and quality of the apple crop, as this is in our opinion of more importance to the probable course of prices, than any shortage or abundance of our home and continental supplies.

We are now told that the crop in the States is below an average, and that the largest supplies are in the west, which will curtail to a certain extent the quantity available for export. From Canada we are told that prospects are not of the brightest, and that Baldwins will be decidedly short, while blight and worms have made considerable havoc among the best orchards.

As to the European crops, we have to report that North Germany has a good crop of early apples, but the remainder of the Empire is very short.

Dutch and Belgium fruit is fairly plentiful and will be early on the market.

As to our home crop, the early fruit is fairly plentiful and cheap, and now on the market, and to give an idea of values, Worcestershire growers will sell any quantity of choice apples at 90/ to 100/ per ton. At the present moment the market is full of these apples, and the few small lots arriving from New York sell at low prices, being of inferior quality and in poor condition.

Last season the imports were close on 3 million barrels, of which only 120,000 went to the continent. Of the remainder, upwards of 1½ millions came to Liverpool. Although there were times when prices here ruled low, still, we feel confident that less money was lo t here than elsewhere.

Of the continental markets, Hamburg appears to be the best port for the article, and we made some very good sales there, and we are advised that the fruit is now very much appreciated and red stock will do well. Greenings do not appear to be in favor.

To sum up we think the prospects are decidedly favorable, and those who have made the business a study, and can put up suitable fruit in a way which will enable it to stand the long transit to this side, have this year a better opportunity of making money than ever before.

Messrs. Jas. Adams' Son & Co., write :—

Throughout this country there appears to be a very light yield of apples, owing, it is generally supposed, to the spring frosts and drying winds, and it is very doubtful if the quantities to be marketed will prove sufficient for trade requirements, even in early varieties. From the Continent our reports are very meagre and unsatisfactory, and we find it difficult to express an opinion, but it would certainly seem as if the general condition of things was more favorable there than with us, several of the northern sections reporting moderate to full crops, and altogether we think it reasonable to assume that fair quantities will find their way to the various markets in this country. These, however, will not last very long, and what is more, they are but little appreciated, as compared with American and Canadian growths, so that for fruit of fair size, and of really good quality, prospects, in our opinion, are fairly encouraging. By this we do not mean that all grades may be shipped to advantage, as some shippers unfortunately concluded last season ; in fact we would recommend the same care being given to the grading and packing in a light season as a heavy one, as poor apples are rarely, if ever, wanted on this market.

London.

Messrs. Garcia Jacobs & Co., write :—

According to all reports the crop of apples on the Continent of Europe will be a little below the average, not so much in the matter of quantity as quality, the latter being below the normal. It means that a more than usual quantity will be packed and shipped to the different markets, and lots of it will find its way to the English ports of distribution, to come into competition with local supplies there.

The crop in the United Kingdom is estimated by the best authorities as follows : Out of three hundred districts or points of production, ten districts show more than the usual average, seventy an average crop, and two hundred and twenty districts under an average crop. Our reports cover the ground fully, and our advices received only yesterday indicate that the quality, as a rule, will be inferior. It all means that the usual call will be made upon America for supplies, and that the latter must be good in quality to command satisfactory values.

Beginning with Nova Scotia and following the great St. Lawrence Valley to the lakes as far as Michigan, the crop of apples will be below the average of ordinary years, and the quality will not compare with last season. In the great fruit belts of Canada our reports indicate a very largely increased quantity over what is generally being published, and

there, as in other districts, it will all be barreled upon the supposition that anything will sell this year. Fruit will be packed closer, and made dangerously poor in quality. It will, as you can see, also tend to increase the out-turn very materially. In New England the same condition exists—a moderately light crop, every possible barrel of which will go to market.

The crop on the Hudson River is heavier than generally supposed, and runs in streaks, there being now no "off" year for their apple crop. This is now beginning to move, but is later than usual, and will not go in quantity for two or three weeks yet. In Western New York the crop of green fruit is fair. Red fruit is not heavy, and will be of poor quality as a rule. In the great Western districts of Illinois, Missouri, Kansas and Arkansas, which are now coming rapidiy to the front as apple producing States, the crop is fine in quality and abundant in quantity. There is also more than the usual quantity in Virginia and one or two more of the Southern tier of States. Maryland, Pennsylvania and New Jersey all have apples in more or less quantity, and the aggregate output will be much more than is now generally supposed. To sum up the situation, while there will likely be on the whole, a little under, rather than over, the normal supply of good fruit, there is every prospect of a fair exportable surplus, much of which promises to be of a quality that ought not to be shipped, and that will have a tendency to keep prices down in Europe. Fine fruit, we think, will meet with a ready sale at satisfactory values; but it should be packed well, and culled freely.

EDINBURGH.

Messrs. James Lindsay & Son write under date of August 31:—

We again take the liberty to advise you *re* the prospects for Canadian apples. We are pleased to say that it is our opinion there will be a very good outlet for that article this season. There will not be any local supply as the weather has been entirely against the growth of apples, too little sunshine; and what apples we have had from the continent are not of a quality that will affect the sale of fine Canadian fruit, so anything that is of this nature, and good color, is sure to make satisfactory prices. Greenings and Falawaters although not of the red variety will also sell well, as those are both favorite apples in our market.

We would strongly recommend that shippers ought to be careful in selecting and packing, and distinctly brand any barrels of a common grade, so that they may be sold on their merits. It is a great mistake to have such grades in a parcel of good quality, as when exposed for sale it might just happen that such packages were taken for sampling, and when exposed to buyers would simply spoil the sale of the bulk; but when distinctly marked with a counter-mark, or with a less number of crosses, then they are sold separately and in no way interfere with the sale of the finer quality.

Also we recommend that packers should be careful and write the proper name upon the barrel. Last season there were many green apples branded Baldwins. Also common Pippins, branded Spies and Baldwins, even some of them were marked Kings. When purchasers find that there are parcels of this description, they generally give them a wide berth, and those interested lose much more on the price of the stock in general, than they would by those barrels being distinctly marked and sold separately.

We strongly recommend that the paper felt should be put on the top, so as to keep the skins of the apples smooth, and as soon as they are ready for packing we recommend they should be shipped. It is much safer than waiting till the cold weather comes. Last season many fine apples were completely destroyed by being caught in the cold chill.

Prospective Apple Crop Report.

DEAR SIR,—We beg to submit for your persual and guidance our ideas regarding the indications of this year's apple crop and prospects, formed both from observation and from reports by us received from reliable correspondents from various apple-producing sections wherever apples are grown.

Great Britain.—Considerably less than last year, as from 314 reports received, 10 are over average, while 74 are average, and 230 under average.

Continent — Spain and Portugal. — Early kinds average yield, but late ones light.

France and Belgium.—Fair average crop, especially early varieties; later varieties (although showing fair crop) are being reduced by apples falling.

Germany and Holland.—Similar to France and Belgium, but with this difference, that later kinds will be lighter, and apples are dropping.

United States.—The following are the estimated percentages, based on a 100 as a full crop:—

New England States	25%
New York State	35 "
Pennsylvania	50 "
Maryland	60 "
Virginia	70 "
West Virginia	45 "
Kentucky	65 "
Ohio	25 "
Indiana	65 "
Michigan	35 "
Illinois	85 "
Iowa	75 "
Missouri	85 "
Kansas	70 "
Arkansas	90 "
Tennessee	70 "
Colorado	100 "
California	100 "
Oregon	100 "
Wisconsin	50 "
Minnesota	55 "

Canada — Nova Scotia. — Under average, being appreciably less than last year.

Ontario. — From reports received, about 35 % of an average crop, with all winter varieties short, except Northern Spies, which appear to be in many sections quite up to the average.

While the United States will this season produce a large quantity of apples, yet the sections yielding best are in the West, which usually are not extensively exported, but it is quite possible this season a considerable quantity may be exported from the Western States. It is quite apparent our reliable market this season, will be Great Britain, and we are of the opinion that for choice apples, properly packed, at reasonable prices, the outlook is encouraging.

We, however, would warn intending shippers, that great care should be exercised in handling only good apples, and only such quantity as you yourself, or some other one or ones of experience, in whom you have confidence, can personally oversee.

It is reported, buyers in some localities, owing to undue excitement, have offered astonishing prices, but it is the misfortune of the apple trade, that prices paid by buyers are often not justified, as the custom is that the apples are purchased before any large percentage is marketed.

We do not care to suggest the proper price to be paid, as so much depends upon the quality and varieties handled, but there is a limit to the price to be paid, which may be discovered when too late.

Buyers should bear in mind that buying orchards by the lump early in the season is a dangerous practice, as a wind or hail storm might easily mutilate the apples as to make them unmarketable.

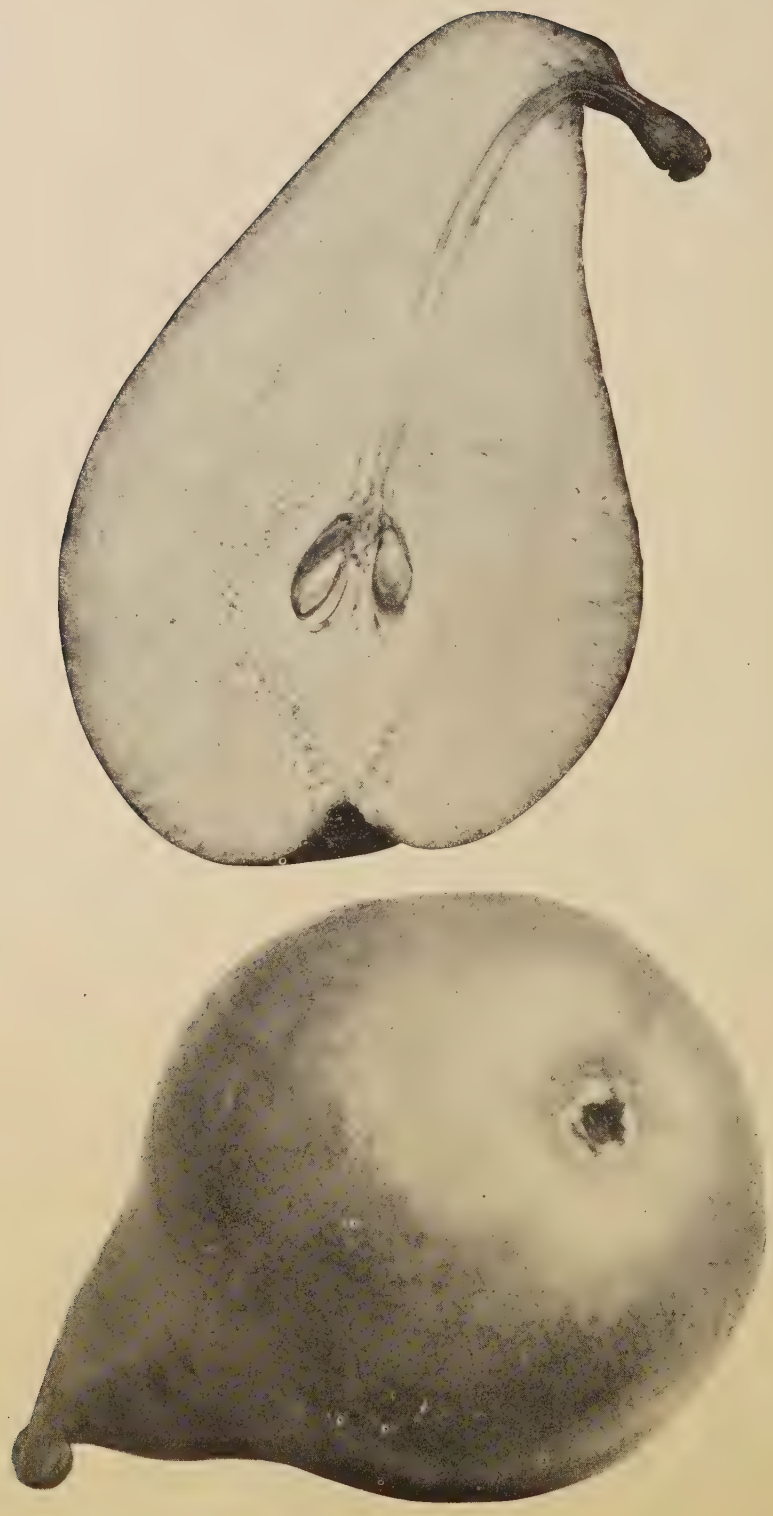
M. H. Peterson, Toronto.

Making and Preserving Grape Juice in Bottles.

I notice in July number of Fruit Grower a request for instructions in detail for expressing and preserving unfermented grape juice in bottles, by some person who has had actual personal experience in the process, and as I have been doing more or less of it every year for over fifteen years, for my family use, and in evidence of my success in the simple process, can show sample bottles of that age and of later bottling, that we test one of occasionally, and find them "fit nectar for men or gods."

In proceeding, use only clean, well ripened grapes. I prefer expressing the juice in an ordinary hand cider-mill (same as making cider), by grinding the grapes; the advantage is, you get the juice at once, that which is expressed by grinding is clear and retains so little foreign matter or pumice. It may, by careful straining through double thickness light flannel, be immediately bottled, while that obtained from pressing the skins, pulp, seeds, etc., will require, beside straining, a little time to precipitate a sediment resulting from pressing. I sometimes filter through a few inches of clean, washed river or creek sand. The sooner, however, it can be bottled and corked, the less fermentation and the more of the peculiar grape aroma may be retained. Whereas, if the grapes are crushed in a tub or barrel, I find it difficult or impossible to express the juice until fermentation dissolves the pulp, thereby losing much of the grape flavor; but the fermentation cuts no figure in the keeping qualities, as I sometimes, for variety, let some ferment to a certain flavor, when I heat and seal it with the assurance that, when opened in the months or years following, the same flavor will prevail.

I use the ordinary wine and beer bottles—carefully wash and drain them, fill to within about three inches of the top. Set an ordinary wash-boiler on the stove; put an inch of sand on the bottom, or fit a thin board over the bottom to prevent the bottom of bottles over-heating, to break or give the juice a cooked flavor; fill the boiler with bottles as close as they will stand without crowding, and fill the boiler with cold water within about four inches of the top of the bottles. Lay on the lid and start the fire; bring the water slowly to a distinct simmer, but in no instance allow it to come to a boil, as this, too, will cook the juice. Have your corks steaming. I use a one-quart fruit can; fill half full of water and put in the corks, lay on the cap, set alongside the boiler to heat and steam while bottles are heating. As soon as the juice gets pretty well heated the air will be thrown off in a volume of minute bubbles rising to the surface, which eventually brings to the top a thick scum or pumice in proportion to the amount of impurities in the juice; this scum increases and pours over the tops of the bottles, which suggest the air is sufficiently driven off to proceed with corking. Lift out a bottle, place on a low table, blow off this pumice, pour off any surplus juice in excess of to fill to two inches of top of bottles, else the cork will not go down; insert a cork, giving it a twisting pressure with the fingers, pushing it down a little below the mouth of the bottle, or can use a cork driver, to be had at any hardware store. Wipe the bottles with a damp cloth and set aside; proceed till all are corked; in refilling the boiler, take out part of the water and fill with cold to a tepid temperature; fill up as before and resume the fire, then proceed to seal those already corked. I use the ordinary canning wax or cement. When melted, add a teaspoonful of linseed oil to each stick of cement, which renders it more adhesive, it should then be well stirred and applied quite hot. I experience no difficulty in the juice keeping with the bottles in any position, but if upright, if any sediment has precipitated, the juice will pour off clear of the sediment. I keep the bottles in my cellar, which is cold, dry and frost-proof. Seldom indeed that a bottle bursts, and then only by defective sealing. I do not put hot juice in the bottles nor bottles in hot water: have never used a thermometer to test the temperature of the water, but had I one, would not let the water exceed a temperature of 190 to 200 degrees Fahrenheit, as water boils at 212 degrees. The same treatment applies to apple juice or cider.—Green's Fruit Grower.



BEURRE CLAIRGEAU.
(From photograph by Miss Brodie.)

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CANADIAN HORTICULTURIST.

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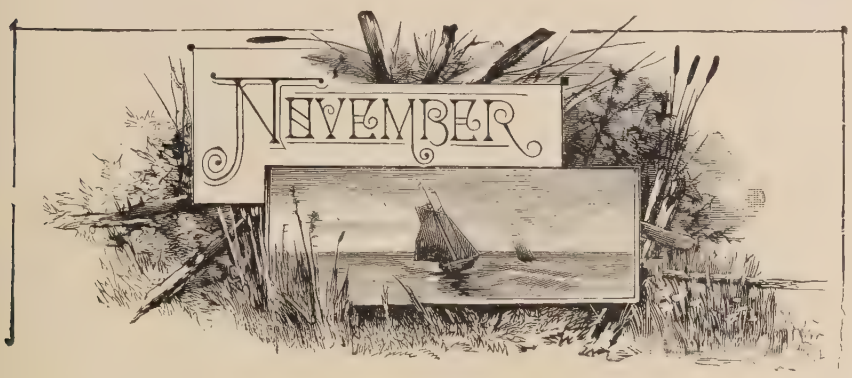

BEURRE CLAIRGEAU.

AS a commercial pear, especially for a distant market, we know of no variety of the same season that is superior to this variety. Its large size, and the beautiful cheek which it takes on during the month of October, its excellent shipping and keeping qualities, all these combine to make it a profitable variety, and one that is easily grown, either as a dwarf or standard, though usually large and fine sized as the former. The quality is variable according to conditions of growth; in France it is counted first quality; in England, third quality; with us, when well ripened, it is second rate.

Origin—Nantes, in France, with a gardener named Clairgeau, about 1834.

Tree—First class in vigor, hardiness and productiveness; wood stout, and upright in habit of growth; branches numerous, grown as a dwarf can be trained to make a fine pyramid; an early bearer.

Fruit—Large, 4½ inches long by 3½ inches in width, one sided, pyriform; skin green, turning pale yellow at maturity, almost overspread with splashings and dots of russet, which completely covers it about the stalk and about the calyx; orange red on sunny side; stalk, ¾ inch long, stout, fleshy at the base, usually set at an angle with the axis; calyx small, open, in a shallow furrowed basin.

Flesh—White, coarse grained, juicy, with sweet, aromatic and vinous flavor.

Season—October to January.

Value—Home or foreign market, first rate.

Quality—Cooking, good; dessert, second rate.

Adaptation—Succeeds admirably as far north as Thornbury; and east as far as Prescott.

Fig. 1232.—Mrs. W. H. Wilkison.
President of the Napanee Horticultural Society.

THE NAPANEE HORTICULTURAL SOCIETY.

THE Napanee Horticultural Society was organized in March, 1895, through the untiring efforts of Mrs. (Judge) Wilkison, who has been the President since its first inception. This was the first instance, we believe, of a lady being elected to the position of President of a Horticultural Society in Ontario; and the success which has marked the Society's existence has proven the choice then made to have been a most judicious one. We notice that other Societies have since followed the course of the Napanee Society, and elected a lady President. Mrs. Wilkison has associated with her an active directorate, each of whom strives to outdo the other in advancing the interests of the Society. The directors started out upon the principle that the easiest way to induce the members to cultivate flowers, was to present them with seeds, bulbs and plants, together with complete instructions for the management of them. Accordingly the Society has made extensive purchases from the most reliable dealers, and up to date has distributed among its members—

FIG. 1233.—"CHESTNUT LAWN," RESIDENCE OF MRS. W. H. WILKISON.

7600 Tulips.	65 Brugmansias.
4000 Crocuses.	66 Begonias.
1028 Hyacinths.	66 Dahlias.
1966 Gladioli.	59 Chrysanthmeums
327 Cannas.	70 Palms.
59 Primulas.	

15 lbs. Sweet Pea, Aster, Poppy, Hollyhock and Dahlia seed.

At the meetings of the Society the elementary requirements of floriculture

FIG. 1234.—MR. J. E. HERRING, *Sec'y-Treas.*

are studied and discussed. Occasionally an essay is read. Last year the Society offered prizes, open to students of the Collegiate Institute, for the best collection of classified Botanical specimens of plants growing wild or commonly cultivated in Canada. The pride of the society, however, is the annual Flower Carnival which now takes rank as one of the events of the year to which the citizens generally look forward with pleasurable expectation. A very good account of the one held in September, appeared in the October number of this journal, and our readers will see by reading that account, that the Napanee Society was at considerable expense, and spared no pains in striving to make their "Flower Show" a success.

The Society has for some time past had in view the establishing of a small model park in the central part of the town, and have hopes, with the assistance of the town, that the matter will, in the coming year, be brought to a successful issue.

JAPAN PLUMS.

SPEAKING of plums, which by the way rank among the highest from a nutritive and a hygienic standpoint, the Satsuma Blood is unexcelled, if equalled, by any other of the Oriental types. Unfortunately, however, the trade knows nothing whatever about this fruit, nor how to handle it. The dealers, bless their hearts, most of them evolved from a Minnesota blizzard, or an entry clerk's high stool in some down town warehouse, are in complete ignorance of the almost infinite variety of new fruits which are every year being sent from California orchards.

Take this Satsuma plum, for instance; it will hang on the trees till late in August, or even September, and then is actually superb in quality. But the trade orders it shipped early in July, and for no other reason except that a Bradshaw plum must be picked as soon as it gets a little colored, or it will get soft. The Satsuma gets deep red a month before it is even mature; the Grand Duke gets black and stays black for several weeks on the tree before it gets soft; Wickson must be picked before it gets a speck of color, and yet in ten days, wrapped in paper, it is completely covered with an intense carmine.

Fruits of all kinds differ vastly in their habits of maturing and ripening, and it is these hordes of draymen and office boys, who have saved a few hundred dollars, who make such hash of the best California products; nothing is easier than to go into the commission business. —Leonard Coates in California Fruit Grower.

FIG. 1235.—"FOUNTAIN HALL,"
Residence of Mrs. Archibald McNeill, a Director of N. H. S.

UNFERMENTED GRAPE JUICE.

ONE SURE WAY.

Weigh out 20 pounds of clean, ripe Concord grapes. Pick from stems into a three gallon granite kettle, rejecting spoiled or green ones. Put in four quarts clean, fresh well water, and set kettle on the fire. Heat to boiling point, but don't boil; remove from fire, mash well with a wire potato masher, and pour into a cheese cloth bag; hang up to drain into an earthen crock or granite vessel, or pour into a wire drainer set into a crock, this is more convenient. It will drain dry in two hours or less. Now measure this juice and add one pound granulated sugar to each gallon; set on the fire and heat again to boiling point, and let it boil just one minute (more boiling thickens it); skim off the surface skum and remove from the fire. Meanwhile have some quart bottles or Mason jars heating in a pan of hot water. Now set a funnel (one with wide top and medium fine wire gauze strainer is best) into a bottle or jar and fill with hot juice. Screw on Mason covers, or cork bottles at once and cover top of corks with hot sealing wax. It is best to soak corks in hot water twenty minutes before filling bottles. Stand up in a cool, dark cellar. This keeps five years as well as one year so long as it remains sealed. This makes a very fine, rich, strengthening drink in sickness or health, alone or diluted one half with water, warm or cold, and agrees with almost everyone.

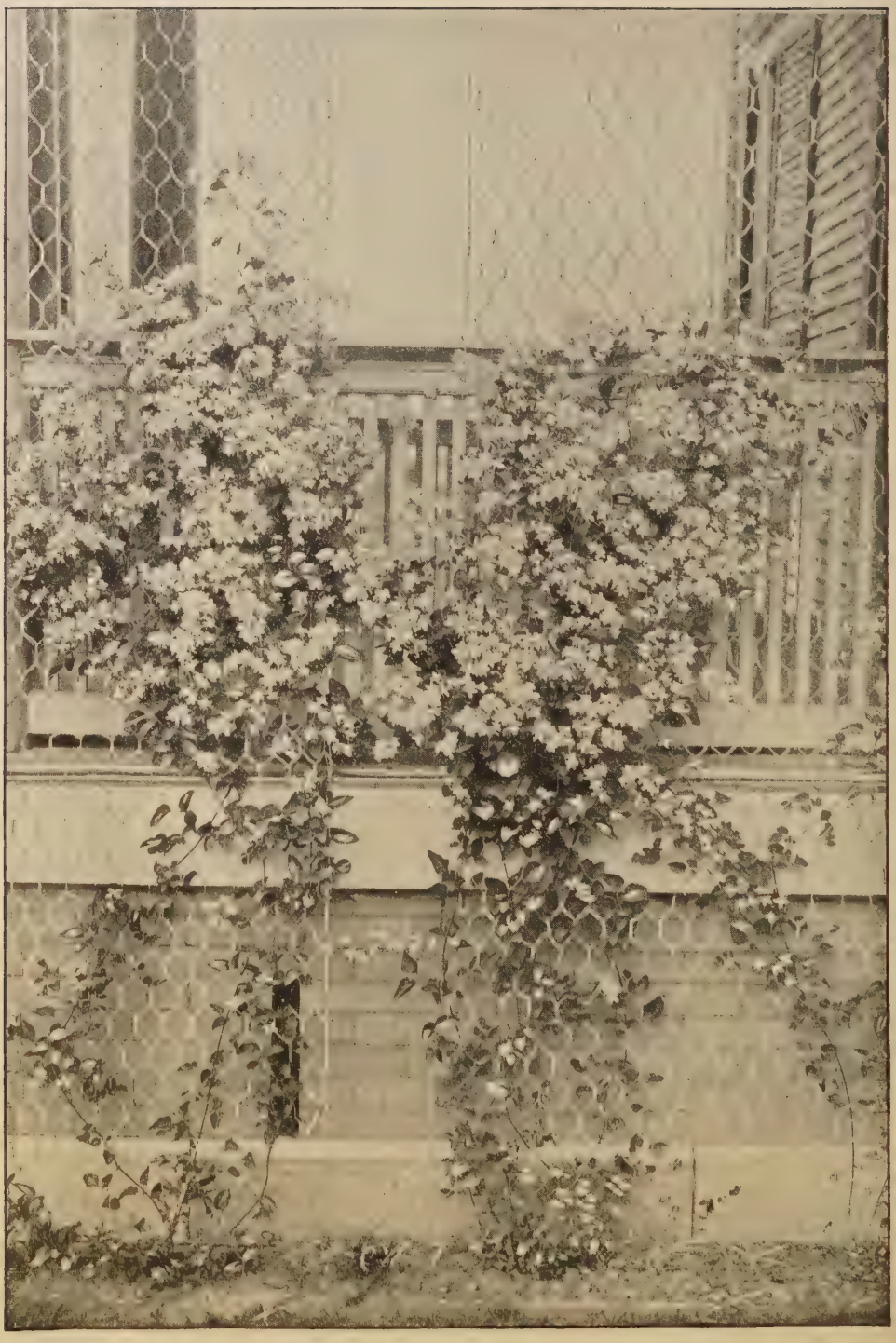

FIG. 1236.—CLEMATIS PANICULATA, (JAPANESE ORIGIN).

Perfectly hardy and a rapid climber, producing a mass of pure white, sweet scented flowers. Unlike any other Clematis, the flowers are borne in long pantcles and appear in August; the foliage remains fresh and green into early winter. This Photo was taken from a vine which had only been planted five months.

THE HOME SURROUNDINGS.

THIS Canada of ours is a charming country, with its rich and varied autumn hues, and picturesque views, and pleasant homes ; but alas how little has been done by man to take advantage of his privileges. Driven by sheer necessity, our farmers begin life by working early and late, and lose sight of almost everything except the intensely practical. To mow the lawns is a waste of valuable time that should be given to hoeing potatoes ; a lawn mower would be wild extravagance ; and to prepare a flower garden would be entirely out of the question. Even the front lawn of the farmers' home is too often strewn with chips and brush, and the walk left to follow the cowtrack in utter disregard of all æsthetic rules.

It is time that a change was made in this regard. Canada is before the world as the foremost of British Colonies as the most important part of Greater Britain. Let us then stir up our self-respect, and add to the stern necessities of life a little of the ornamental, that our exterior may keep pace with our real worth and progress. This it will be the object of our Horticultural Societies to attain, and many of them are already doing themselves and the country credit by the enthusiasm being aroused in beautifying the public parks and the home surroundings.

FIG. 1237.—MRS. MACKLEM'S FRONT PORCH, CHIPPEWA.

We have received from a member at Chippawa, a photograph showing a little view of the front porch, prettily decorated, evidently the work of a lady's fingers. Mrs. Herbert Macklem is the one, and she writes :—

"I saw in one of the numbers of your paper a paragraph requesting the members to send some views of their flowers, etc. I herewith enclose a corner of foliage plants and begonias and vines growing on our porch, which has been very much admired; trusting it will find a place in your paper."

Too little use is made of climbers for beautifying the porch, festooning the gables, or hiding defects of our houses. The finest home may be made attractive by their use, and the most dilapidated house, without paint or ornament may become artistic and interesting through their transforming grace. Nor need the cost be much. The Virginia Creeper grows well in Ontario, in many places festooning the trees from trunk to branch. It may easily be transplanted, and being a vigorous grower it soon covers a bare wall with trifling supports. Even the Morning Glory is not to be despised, growing up from seed so quickly, and climbing up a cord with its wealth of color. Then we have in Muskoka a native clematis of considerable value—C. Virginiana. Samples of this climber were sent us a few years ago by Mr. J. P. Cockburn, one of our members at Gravenhurst, and we have been much pleased with it, for it is a graceful climber, dying back only a portion of the new growth each year, while its numerous corymbs of small white flowers are very pretty. Besides these we have the Climbing Bittersweet, the Sweet-scented Wild Grape, and several others.

FIG. 1238.—SPIRÆA VAN HOUTTI.

Then there are a great many elegant exotic climbers for those who can afford the expense. The clematis especially affords a great variety, the best-known of which is C. Jackmani with its wealth

of large showy purple flowers. A beautiful variety is also shown in our full page plate, viz., C. Paniculata, taken from a photograph of a vine only five months planted. The flowers are pure white and sweet-scented, borne in long panacles, and appear in August.

In some future article we may be able to give fresh illustrations of some of the numerous other creepers within reach, as, for example, Akebia quinata, Japan ivy, Hall's honey-suckle, English ivy, etc.; also, of some of the many interesting native exotic shrubs suitable for the lawn. We have before us an excellent photograph by Miss Brodie, of Spiræa Van Houtti, which is worthy of a general introduction to our readers, because it is hardy, a free grower, and so easily propagated that if you have one bush you can soon have an abundant supply.

This picture shows the bush in full bloom, as it appeared early in June, 1897. Of all spiræas this one is, perhaps, the most satisfactory for lawn effects, where pure white color is needed. Some have used it as a hedge plant with excellent results, as it bears the shears well, but of course it would be for ornament only.

In previous numbers of this journal we have drawn attention to the importance of the Approach in laying out the grounds surrounding a house that has any pretentions to elegance. In such a case it should not be too nearly in front of the house but so much to one side as may be convenient in order to give a fine sweep of carriage road up to the door, and to allow of such planting as will hide the beauties of the lawn within, and house front, until the entrance at least has been made. A beautiful example of this is

FIG. 1239.—ENTRANCE TO A GARDEN IN NIJNI-NOVGOROD, RUSSIA.

here given ; it is an entrance to a garden in Russia, more elaborate than would be attempted by many of our Canadian gentlemen, but giving some suggestions well worthy of consideration. The picture is from the American Florist, and belongs to a garden at Norgorod, which is one of the finest in that city.

PLANT LICE OR APHIDS.

IT is becoming more apparent every year that to be successful, the horticulturist must be familiar with the essential principles and facts of economic entomology. Every season has its especially bad insect pest, and, generally speaking, so little is known of the life histories and characteristics of even our common forms that they are often neglected till too late, or are fought with inadequate and ineffectual weapons. No better illustration could be given than the case of plant lice. We have had a scourge of these most injurious insects this year. I do not recall so bad a visitation for six years, and the damage done by them has been greater than that by any other insect, yet, in a very limited experience, I have heard of many cases, where afflicted gardeners and fruit growers have dosed the enemy with Paris green, and have been very much astonished and disgusted to find that it "didn't fizz on them." A very little insect lore would have saved them from such a mistake.

The question of why we get a big plague of this and that insect, and then are free from trouble for years is an extremely interesting one, but would take too long to enter into here. Climatic conditions are largely responsible, and the other main cause is the absence or presence of nature's checks, the parasitic and predaceous forms of insect life. A decrease in a predaceous species means an increase in its prey. After a while the predaceous insects catch up, the oscillation is continued *ad infinitum*, and the balance of natural forces is thus maintained. It is, of course, comforting in a vague way to know that Nature is on our side ; and to feel that next year our special enemies of this year may be wiped out. The comfort is very considerably lessened by the fact that we are "getting it in the neck" meanwhile. We must forge our own weapons, but a knowledge of the foe's vulnerable points becomes indispensable, and so, *revenons à nos moutons*.

Plant lice are members of the family Aphidæ, belonging to the section Homoptera, and the order Hemiptera. This section or sub-order Homoptera, includes all the bark lice, leaf hoppers, plant lice, mealy bugs, scale insects, etc., and contains practically nothing but injurious forms of insects, some of them extremely difficult to fight. They are characterised in common with all the hemipterous insects, by the possession of a suctorial mouth apparatus, only taking their food in a liquid form, whether it be animal or vegetable. They are further marked by the general insignificance of their size, and the extraordinary rapidity with which they breed, dangerous characteristics as far as we are concerned. Of the family Coccidæ in this order one would like to speak, if time permitted. The Coccids or scale insects are lice that form over their bodies a protective, waxy scale of various kinds. The most injurious of

these insects are found in the sub-family Diaspinæ,—"the armoured scales,"—familiar species being the oyster shell bark louse (*Mytilaspis pomorum*); the "scurfy" bark louse (*Chionaspis furfurus*), and the dreaded San José scale "*Aspidiotus perniciosus*). These, like the plant lice, are inconspicuous, and extraordinarily prolific. The life histories vary somewhat, but the feeding habits are much the same, and the principles which govern the methods of fighting the one, hold good also against the other.

The family Aphidæ contains so many species of plant lice that it is out of the question to give even the briefest description of many of them. Probably the two best known to fruit growers are the black cherry aphis (*Myzus cerasi*), and the green aphis. Less familiar species are the hop-louse, melon-louse, cabbage-louse, etc. Some of these species feed on an immense variety of plants. A large number of species concern themselves mainly with the roots of plants, and are extremely difficult to eradicate; the corn-root louse and the peach louse (*aphis persica-niger*) are examples. Then there are the gall producing types, such as the "cock's comb" gall, and finally the "woolly plant lice," which are highly injurious, and are typified in the "whoolly apple louse."

The life history of most of the plant lice is as follows: They winter in the egg stage. Directly warm weather arrives and growth commences, the eggs hatch, and in a very short time the wingless aphid gives birth to living young. In five or six days the young aphids are ready to reproduce, so that by the end of a few weeks the progeny of the original "stem-mother" mounts well into the millions. All this time no males have been produced; plant lice in the early part of the season always breeding agamically, that is, without the intervention of a male. If reproduction is very rapid a scant food supply is guarded against by the birth of winged forms, which hie off to "fresh fields and pastures new." As the cold weather approaches, and growth of vegetation ceases, the plant lice develop both sexes, the female being wingless. A few eggs are laid, sometimes very few, usually at the ends of the twigs, or near buds where vegetation is likely to start first in the spring. The eggs are tough, and resist successfully ordinary insecticides and severe climatic conditions. The lice, of course, live on the juices of the plant or tree, the effect on the tender growing shoots being woful. When sap is abundant, and the lice are present in great numbers, the "honey dew" which they excrete to ease themselves, glazes all the adjacent foliage, and a fungus disease develops which rapidly kills the vegetable tissue. It has been thought till quite recently that this "honey dew" was ejected from two little tubes frequently found on the upper part of the sixth abdominal segment. Professor Comstock states that this has been found to be a mistake. The flow of this sticky liquid is from the hind opening of the alimentary canal.

The relationship of ants to the plant lice is now so well known that it is hardly necessary to refer to it. Readers of Sir John Lubbock's works, of Darwins' "Origin of Species," etc., will readily recall the interesting chapters dealing with the relation of these insects to each other. The principal food of the ants seems to be this same "honey dew," and though ants are not directly injurious to vegetation, they are, undoubtedly, indirectly injurious, inasmuch as they protect and colonise the various species of aphids. I look upon

the ant, however, as an extremely useful warning signal. Half the time we should be unaware of the existence of the lice on the trees, if it were not for the ants scurrying up and down for their favorite food.

Now, as to the practical bearing of all this. It is a case evidently where delay is disastrous. It is true that fighting these pests is a highly disagreeable business, and that applications are useless if not thorough. It is also true that some seasons are so unfavorable for their development that it hardly pays to bother with them. Nevertheless, taking one year with another, it would undoubtedly pay, and pay well, to fight them systematically before the colonies have increased to any extent. Some of us left our cherry trees this year, in the hope that matters would not be so bad. We know the result. The black aphis literally covered the trees. A large proportion of the cherry crop (one of the few "paying" crops this season) was utterly ruined. Branches, twigs, leaves and fruit all carried a load of lice. The state of things was simply loathsome. No wonder that pickers "kicked," and that buyers complained of "sticky" cherries. The work of the green aphis on the new shoots of plum and pear trees was equally injurious. Growth was stopped or retarded, and the trees terribly weakened.

The really satisfactory remedies are confined to about three, viz. :—kerosene emulsion, fish-oil soaps, and tobacco. It cannot be too often stated that no stomach poison, such as the arsenites, are any good whatever against plant lice or any other hemipterous insect. We can only "fix" them with applications that clog the spiracles through which they breathe. It should be borne in mind that the darker species of aphids are much harder to kill than the green species. Kerosene emulsion diluted with ten or twelve parts water is efficacious against the green lice, but to be effective against the black aphids, especially the mature ones, it is necessary to dilute only with from six to eight parts water. Fish-oil soap may be diluted with half the above quantity of water. Tobacco is often recommended at the rate of one pound to six gallons of water, but unless a good sample and thoroughly boiled, it is not effective in that proportion against the black cherry aphis. The addition of a small quantity of fish-oil soap to the tobacco water will be found helpful. The thing to be continually borne in mind is that the work must be thorough and, above all things, must be begun in time. A stitch in time saves nine hundred and ninety-nine in this case. I have spoken above of the natural checks against injurious insects. There are many predaceous enemies of the aphids, and though we should be unwise to place too much reliance on their assistance, that assistance is sometimes of great value. Some of these beneficial insects may be referred to at a later date.

M. Burrell.

St. Catharines.

Baked Pears.—Put into a pan pears which have been washed, but which are unpared, add one or two spoonfuls of water, and then bake; sprinkle with sugar, and serve with their own syrup. Many pears which are not as nice as they might be originally, when baked as above turn out to be very good indeed.

Fig. 1240.—Tropical Plants in Canada.

A FINE CACTUS.

REGARDING the cactus, I might say that twelve years ago I got a small cactus leaf from a friend in Wingham, which I planted. It received very little care or attention, but appeared to thrive well from the start. During the winter months little or no water is given to it, but in summer it is watered freely. It commenced to bloom when seven years old, having about a dozen flowers the first year, and has flowered every year since, and the past summer it contained at one time 150 blossoms. During the winter months it is taken into the house and kept in a room with moderate tem perature, but on one or two occasions other house plants that were in the same room, were slightly injured by the frost, but the cactus did not appear to be hurt. In summer it is put out on the lawn, where it is left till late in the fall. It is eleven feet nine inches high, eight feet wide, and the stalk is eighteen inches in circumference. Thos. Matthie.

Lucknow.

GRAPE CULTURE.

DR. J. W. GOODELL, of Lynn, Mass., contributed an article to the "Transactions of the Essex Agricultural Society," on the subject of "Grapes and Grape Culture in Essex County," of which the following is an abstract: The use of grapes stimulates the digestion, and is an acknowledged blood maker, building up the system in wasting diseases. In certain foreign countries the use of the grape has the title of "the grape cure," each patient eating several pounds of grapes per day, and gaining both strength and flesh. This should lead to increased culture of the grape in our gardens.

The vine may grow in almost any soil but does not flourish unless the ground is well drained, sandy loam, well enriched with old, well-rotted fertilizer. It requires water, though that should be supplied from the surface, rather than from the subsoil. The situation should be fully exposed to the sun and a free circulation of air. It should be sheltered from the north and west winds, which are liable to cause blighting of the young fruit.

An important factor is the variety to be planted and the length of time required to grow and ripen both fruit and cane. The season of 1891 should not be taken to guide the decisions, when three weeks of October passed without the tenderest plant being injured by the frost. It is safe to say that any grape which requires any portion of October to ripen its fruit in this section should be discarded.

In the average year we have damaging frosts by Sept. 25. The fruit will seldom improve after the foliage has been chilled. If left on to absorb the frozen sap, the fruit will lose its original character, become flat and tasteless, also decaying in a short time. Any vine which does not ripen its wood in September will run the risk of being winter-killed, and should be discarded, or simply tested as an experiment.

If one has a well sheltered location, or is willing to take the vines down from the trellis in the Autumn, cover them with some coarse, loose material, and put them back each Spring, he may succeed. The great majority of New England grape growers raise grapes for their own consumption, and not for market, hence the first consideration is quality and early ripening. The first vine selected would be *Moore's Early*, which possesses all the good qualities required. Second, the *Hartford*, whose greatest fault is dropping. This can be in a great measure prevented by free irrigation while the fruit is ripening. This irrigation will also improve the size and quality of the fruit. Third, *Brighton*, one of the finestflavored grapes we have, that will ripen in September. Fourth, *Concord*, a good grape, hardy and prolific, yet often overtaken by the frost before its fruit is well ripened, therefore uncertain. The planting of the *Worden*, as superior in many respects, and ripening one week earlier, is advised. The *Niagara* has not given satisfaction to its patrons and cultivators in this section. Neither has the *Pocklington* done as well as was expected of it. Our average season is too short for the last two varieties. Of all the Rogers 30 odd varieties, *No. 4* (Wilder) stands at the head, and is worthy of cultivation. Most of the Rogers varieties appear to blight, and are prone to take on all the

fashionable vine diseases. If you have room for only two vines, plant a Moore's Early and a Worden.

If you desire to plant more grapes in vineyard form, set cedar posts 10 feet apart and six feet out of the ground. Then commence 18 inches from the ground and run strong galvanized wire from post to post, fastening firmly with fence staples. Three other rows may be placed 15 inches apart. Plant your vines at each post, and train both to right and left, fastening the vine to the wire by means of leather or of soft pieces of cord. Copper wire is sometimes used for this purpose, and is very durable, though it is liable to cut the vines when heavily laden with fruit.

All dressings for the vine should be thoroughly composted. Bone for the phosphorus and wood ashes for the potash; sulphur, iron and some vege table mold as an absorbent are needed. Mix well, and sprinkle the pile well over with land plaster to prevent the waste by the evaporation of gases, especially ammonia. Apply in early spring, and work in thoroughly. Saving your soap suds on wash days and applying about the roots will well repay the trouble. Better still, partly fill an old barrel with ashes, soot, old iron and ground bone. Pour your suds on it, and apply the mixture from time to time.

Thinning the fruit requires courage. Take your clippers and go through the vines, and cut out all small and imperfect bunches sometimes even to one-third or one-half the number of bunches set. By this method you will grow larger and finer clusters and more pounds of fruit.

Careful cultivators bag the best bunches. When the grapes are about one-half grown they slip a common grocer's paper bag over the bunch they want to protect, and bind around the vine, on both sides of the stem. This keeps it free from dust and many insect pests. Though this method may retard the ripening for a week or so, yet the frost that would cut the foliage would not harm the grapes thus protected.

Another method to improve the fruit is to grow as little wood as possible. When a cane has attained the length you desire, nip it in. Go over the vines every week or so, nipping any straggling shoots. Cutting away leaves to let the sun in is a great mistake, and should never be done. The leaves are the lungs of the plant, and any injury to the foliage is an injury to the vines, and leads to disease, often death. The largest and finest bunches are found hidden beneath the dense foliage.

RUSSIAN APPLES.

AFTER several years of careful trial of a large number of the best Russian apples, I have come to the conclusion that, except for the most northern localities, where good, old, well known sorts will not live and bear, we have not gained much from those varieties hitherto introduced into this country. There are a few exceptions however. In the "Yellow Transparent" we have an exceedingly early apple of very good quality. This is probably the earliest kind ever introduced, and for family use and a very near market is valuable. Absolutely hardy—it may be planted anywhere.

Another very beautiful early apple that may come to be a strong rival to

the "Yellow Transparent" is the "Lowland Raspberry." This is of better quality and much more beautiful. It is of fair size—full medium—and bright color, yellow, marbled with bright crimson—and is a good bearer; flesh tender, breaking pleasantly sweet and juicy; a good, handsome apple of its season. The tree is besides very hardy.

"Switzer" is another surpassingly beautiful apple. It is not as good a bearer as either of the preceding varieties, nor as hardy, and it blights badly and begins to drop from the tree as early as the end of August, though the bulk of the crop may hang, and continue to increase in size, till the 10th of September. It will also continue to deepen in color, till at the last it is of a deep glowing crimson scarlet. For size, beauty, and quality it leaves nothing to be desired.

It is impossible to say, honestly, with our present knowledge, that there are any long keepers amongst the Russians, though now at the end of March, the winter "Arabka" is still sound and good, crisp, and fair flavored. This is a large apple, of good shape and deep dark red color. It is not of first rate quality, but fully equal to the "Ben Davis"—a variety that sells well in England—*vide* the Montreal "Star." The winter "Arabka" is rather slow to come into full bearing, but when it reaches that condition it bears well, and will, possibly, be a profitable kind. Its weak point is that it scabs badly and splits, and then it is worthless. Spraying may obviate that defect.

"Borsdorfer"—perhaps not a Russian though usually called so—is a good bearer of small apples of good quality, that keep a long time say till March at least—perhaps longer. The fruit of this variety is not larger than the "Pomme Grise," and like that old favorite is of good quality. It is a firm, crisp, sugary apple, a good family fruit, but too small for market.

"Autonovka"—This is an apple that promised well, and of which good hopes were entertained, but it has proved disappointing the last two seasons. The tree is of the hardiest character and bears profusely large, handsome green apples, but they do not keep till the first of November. Perhaps when we understand them better, and pick them just at the right time, they may keep longer. Picked last fall in the first days of September, they began to spoil almost immediately.

"Longfield."—This variety shouldnot be omitted. It is a most extraordinary bearer of apples of a very good quality. It is small however, never getting above medium, and the color is dull. It would consequently never make a good marketing variety. But for home use, or for cider making it will prove a very useful kind, especially as the tree is one of the hardiest, and begins to bear at once on being planted. This year it was still sound and good at the New Year, and delightful eating then.

A few that up to this time have borne only one or two fruits may yet turn out good keepers.

Fully ninety-five per cent. of the long list of Russians on trial are either summer or fall apples, and of the remaining five per cent. there will not probably be one that will be sound on the first day of May.—Robert Hamilton, in Canadian Horticultural Magazine.

SOME OF THE NOVELTIES.

JAPAN GOLDEN MAYBERRY.

THE appearance of this comparatively new introduction is very prepossessing. Its habit is erect and bushy with numerous slender branches and leaves. It is quite prickly and attains a height of about two feet. It has many adventitious root buds and is hence readily multiplied by suckers or root cuttings. When this is said, all is said. We have propagated and grown it for three years and have not yet succeeded in coaxing out of it a flower, much less a fruit. Yet it is puffed by the dealers who handle it as the earliest berry known—preceding in ripening even the strawberry—while the cuts of the fruit which they publish are beautiful and tempting.

I regard it as an unmitigated humbug—and equally as great a fraud is the

STRAWBERRY RASPBERRY.

This is really a dwarf Japanese raspberry (*R. sorbifolius*), which grows, under favorable circumstances, some ten or twelve inches high. It has graceful, delicate, pinnated or feathery foliage and multiplies with the persistance of a strawberry by underground stolons—even to such an extent as to become a veritable pest or nuisance. But when you come to look for fruit—you fail to find it. It blooms scatteringly through the summer, the blossom much resembling in size and appearance the flower of the blackberry. The petals of the corolla drop off, leaving the receptacle bare and dry ; on it, here and there, is occasionally found a single red drupelet (or seed grain) which has been accidently pollinated and adheres—but there is nothing that could be possibly magnified into a fruit. It is much less edible, in fact, than the berry of the little yellow flowered wild strawberry—the *Fragaria Indica*—of our church yards.

THE JAPAN WINEBERRY

is somewhat less of a fraud, but still a disappointment. It is a species of raspberry with stout canes, bearing numerous weak-red prickles and with foliage somewhat resembling that of the Logan berry. Its peculiarity consists in the calyx or hull entirely enclosing the fruit during the earlier period of its development. This husk, however, opens when the fruit is fully matured and before it ripens, exposing the berry within, which is small, much resembling a *Turner* raspberry, but harder, more crumbly and of a brilliant scarlet color, with a brisk, tart flavor. While the berries are borne in clusters and it is tolerably productive, it is not of any commercial value. It presumably propagates by tip-rooting, though I have sometimes found suckers at a good distance from the stools, indicating adventitious root-buds.

TREE CRANBERRY.

This plant (*Viburnum opulus*) is quite a novelty in the South. It belongs to the great honeysuckle family. It is a tall, nearly smooth shrub, with gray bark and scally buds, and seems to withstand our southern sun effectually. We only planted it at the Station last February, but it has borne this season large clusters of fruit somewhat resembling elder berries, but larger and more oval shaped. They are now (Aug. 18th) a bright red color, but still hard and evidently have not yet finished their growth. Whether they will form a satisfactory substitute for cranberries at

Thanksgiving time, remains to be seen. It is claimed that the bush, which grows some four feet high and is perennial, will hold its fruit well after frost.

It is perhaps not exactly correct to class the

ROCKY MOUNTAIN CHERRY

as a "small fruit," since it belongs, botanically, to the plum family—but a small fruit it is, in fact, and the public has been already put on notice that this was not intended as a scientific but a popular paper.

The plum generally known as the "Rocky Mountain Cherry," is the *Prunus pumila*, which grows, perhaps, four or five feet high and bears a small, oval, tasteless and worthless fruit. But this is not the Rocky Mountain Cherry that I mean. I refer to its sister, the *Prunus Besseyi* of Bailey, which is of much dwarfer, scrubbier habit, seldom reaching three feet in height, and sending out numerous laterals as long as its main stem. In fact, as my foreman, Mr. Jones, sententiously remarked, "it tries its best to wallow all over the ground!" Its leaves are larger, rounder and thicker than those of the *P. pumila*.

As for fruit, it is simply one mass of it, clustering thickly around the stem and laterals. I honestly believe a three-year-old bush will bear a gallon. The size and shape is that of a good-sized Bigarreau cherry—larger than a Morello—color being black and flavor distinctly that of a cherry, with a similar pit. It contains, however, both distinctiveness of acid and sugar, although possessing but little acid, and is quite agreeable eaten off the bush.

It grows anywhere and yields, as I have previously stated, phenomenally. Up to this season I should have recommended it without reservation; but the present year its blossoms were caught by a late frost—an accident I have never before known to happen to it, as it does not usually bloom prematurely. —Georgia Experiment Station Report.

THE STRAWBERRY RASPBERRY.

MR. A. E. SHERRINGTON, experimenter in Huron County, sends us samples of the Strawberry raspberry as fruited on his grounds, and from one of them we have taken a photograph which gives a truthful representation of its size and appearance. It is a singular fruit, quite interesting as a novelty, but in our opinion inferior to either of the fruits of which it is a supposed hybrid. Its property of continued bearing throughout the season, and the sweetness of its bloom, make it desirable for the amateur's garden, but for profit it would be of no value. The plant is a herbaceous hardy perennial, like the peony, and probably not in any way related to the strawberry. Mr. Sherrington's experience with this berry seems to be more favorable than that at the Georgia Experiment Station, given on page 413.

FIG. 1241.—STRAWBERRY RASPBERRY.

PRUNING AND TRAINING RASPBERRIES.

WE are too fond of shortening all the reserved canes to one height, and, as a consequence, there are usually thickets of fruiting shoots, at the tops of the stakes of fences and few lower down. The canes, whether trained to single stakes, fences, or espaliers formed with other wires or stakes, or grown market-grower's fashion (that is to say, without supports of any kind), should be shortened and laid in at least three different lengths, the smallest of those reserved at the preliminary thinning being the hardest cut. Shorten the latter to a length of 18 inches, leaving others to from thirty inches to three feet in length, and in the case of the taller growers the strongest canes may be left to a length of five feet or rather less. In this way perfect columns, fences, or hedges of fruiting growths are had, and a greater weight of fruit obtained than by shortening and training in the common fashion. It is true somewhat hard pruning is apt to favor sucker growth from the roots, varieties of medium height being particularly liable to produce far more sucker growths than desirable. This may to a certain extent be checked by either hoeing or hand-pulling, those left in the rows or near to the old canes also requiring to be timely and freely thinned out. There must be no hesitation about pruning newly-planted canes. Unpruned or only lightly shortened canes may and do produce fruit, but it is usually of an inferior character or comparatively worthless, added to which the plants will be exhausted in the attempt, and form no young canes worthy of the name. Cut them down to within six inches of the ground, and if they were properly planted all will push up strong young canes equal to bearing fruit next year. In this way the foundation of profitable rows of plantations of Raspberries will have been laid. Newly-planted canes should also be mulched, as owing to not having had time to send their "anchor" roots down deeply into the soil drought will quickly affect them. They ought further to be assisted by watering during dry, hot weather.

THE ADVANTAGES OF JUDICIOUS PLANTING.

JUDICIOUS planting and the skillful culture of plantations combine national and private interests in an eminent degree; for, besides the real or intrinsic value of the timber or ostensible crop, with other produce of woods, available for the arts and comforts of life, judicious forest tree planting improves the general climate of the neighborhood, the staple of the soil, as regards the gradual accumulation of vegetable matter, affords shelter to live stock, beautifies the landscape, and thus greatly and permanently increases the value of the fee simple of the estate and adjoining lands.

If we turn to these soils emphatically termed wastes—exposed, elevated lands, moors, marshes and sterile sands—composing a fair average of this Dominion, and naturally clothed by the lowest and least valuable products of the vegetable kingdom. The inferior grasses, rushes and sedges, we find that upon them the more valuable domestic animals can not exist. If we consider the reason

why they are so barren, waste, and unproductive, when compared with other lands not more favored by nature, and under similar circumstances of latitude and elevation, the cause will, in many instances, be found in the want of shelter and shade of trees, and of the ameliorating influence which plantations exercise on ungenial local climates.

The essential, permanent pasture grasses cannot be established on naked exposed situations, but when assisted by the shelter of forest trees they become permanent and productive. Plantations supply us with fuel, with materials for fencing, enclosing, building, corn crops, soiling plants, and root crops are obtained in succession under their genial protection. Many thousands of acres now unprofitable to the owners and to the community, might, by judicious planting, be reclaimed, and rendered highly productive; and it may be safely affirmed that there is hardly a spot of waste land in the Dominion so barren, which, by the exercise of skill in planting, and selection of proper species of forest trees adapted to the soil and exposure, might not be covered with profitable plantations.

Numerous instances might be cited from different parts of England, Wales and Scotland, where exposed and sterile lands have, by planting, been made capable of producing valuable arable crops and the best pasture grasses, and of rearing and fattening stock of improved breeds. This, in effect, is adding to the territorial extent of a country, to its wealth and strength, by conquest over the natural defects of local climate, soil and exposure.

Hamilton. FRANK BRUNTON.

(To be continued.)

POT CULTURE OF HYACINTHS.

THE cultivation of hyacinths in pots will always be the most popular form in which they are grown for early and indoor use; and in the common flower pots, single bulbs planted in 3½ inch pots will answer admirably for the ordinary amateur's use. In the first place, the soil is important; it should be light, preferably mixed with half well-decomposed manure is an advantage, and a supply of turfy loam, which will produce best results if moist when the bulbs are potted. Charcoal in the form of a cobble is advised, and, if used, should be placed in the bottom with a piece of broken crock to ensure drainage. In potting, simply fill in the soil, press the bulb into the earth and bring soil round and up to the sides of the bulbs. They should be pressed well into the soil, for firmness in this direction is a great advantage. After potting, place in a coolish location, and they will not need any other treatment until they begin to sprout. Directly the potting is finished, we think it is best for the pots to be placed in a cool dark pit, and if they are plunged in coal ashes all the better. If they are potted for forcing, they may be removed as soon as their spikes come through the ashes. —The Salisbury Series.

Flower Garden and Lawn.

THE NARCISSUS, OR DAFFODIL.

THE genus Narcissus is a very extensive and remarkable one, from the great diversity in the types and color of the flowers. It includes that most beautiful section known as the Polyanthus narcissus, the well-known Jonquil, and the several types of single and double narcissi popularly known as daffodils. The wonderful improvements in the way of new varieties has awakened an increasing interest among the lovers of the narcissus and placed the plant in the front rank of popularity, and well do the different varieties deserve all that can be said in their praise as plants for the flower border, producing, as they do, masses of gold and silver hue, and a delightful fragrance. They are equally valuable for growing in pots for winter blooming in the greenhouse or window-garden, while the cut flowers of some varieties are highly prized for bouquets and vases, and for this purpose are grown in immense quantities.

The flowers of the narcissus show in the different varieties many forms, and shades of color, ranging from pure white to deep orange, and all have most pleasing fragrance. They are easily grown, requiring no particular skill or care, and the bulbs can be planted at any time from September to December, but it is advisable to plant them as early as possible. In potting use pots proportionate to the size of the bulb, and as some of the bulbs are quite large, a single bulb will, as a rule, require a four-inch pot, and if it is desired to grow them in groups of three or more bulbs, larger pots should be used and the bulbs placed equal distances apart In potting let the pots or pans be properly drained, and use a soil composed of two-thirds turfy loam, one-third well rotted manure, and a fair sprinkling of bone dust; mix well and use the compost rough; fill the pots with soil to within three inches of the top, then set in the bulb and fill with soil to within half an inch of the top, water thoroughly and place in a cool, dark cellar to make roots, giving water when necessary.

In about six or eight weeks after planting, or as soon as indications of a vigorous top growth are noticed, a few of the most forward can be removed to a light, sunny situation, where an average temperature of fifty degrees is maintained, giving water freely and as much fresh air as possible. Keep the plants free from dust, and remember that the flowers will last for a long time

if placed in a cool temperature when fully expanded. By starting a few of the most forward into growth at different times during the winter, a continuous bloom may be enjoyed.

After the flowers have commenced to decay remove the stalks, and as soon as the foliage commences to turn yellow the supply of water should be gradually reduced and the plants removed to the cellar or placed under the greenhouse stage, where they can remain until fall and then be planted out in the mixed flower border, or the larger ones repotted for another winter's use inside. For inside use, however, I advise the purchase of a fresh supply yearly, as they can be procured at a reasonable price and the result will be much more satisfactory.

When grown in the flower border the narcissus should be given an open, sunny situation, and a deep, well enriched soil, and during the winter be heavily mulched with coarse littery manure; this mulch should be applied early in December, and gradually removed towards the end of March. In the border the bulbs do best when planted in October; they should be planted about four inches in depth and in groups of five or six, keeping them a few inches apart. Here they can remain for four or five years without being disturbed and by that time the bulbs will commence to crowd each other, then they should be carefully taken up, divided and replanted. The bulbs can be purchased in mixed colors or in named varieties, but I consider it advisable to procure the named sorts as the cost is so little and they always produce the best results. Of the many varieties in cultivation the following are some of the most desirable:

FIG. 1242.—NARCISSUS POETICUS. N. INCOMPARABILIS FL. PL. N. TRUMPET MAJOR.

Orange Phœnix, or Eggs and Bacon, as it is popularly known, is a very double, showy and distinct variety of N. incomparabilis aurantius. The flowers are of a soft sulphur or nearly pure white with a crimson center.

N. bicolor Emperor. Entire flower of

the richest yellow; trumpet of immense size. The petals of the perianth measure three and one-half inches across and are so broad that they envelope.

N. bicolor Horsfieldi. The King of the Daffodils. Very large flowers of pure white with rich yellow trumpet. An early and free flowering species.

N. incomparabilis is popularly known as the "Peerless daffodil." It has large primrose yellow flowers with a short sulphur crown.

N. incomparabilis Stella. Flowers star-shaped, three inches across; in white, with a bright yellow cup. One of the earliest and most free flowering varieties.

N. Poeticus is the Pheasant's Eye, or Poet's narcissus. Although one of the oldest varieties, it is the finest for all purposes. Flowers pure white with a showy orange-red ringed cup.

N. Poeticus flore pleno. The Gardenia-flowered daffodil has double, fragrant, snow-white flowers. Exquisitely scented, and should not be omitted from any collection.

N. trumpet major. Flowers large and of a deep yellow, with long, showy trumpet. Highly prized for forcing, and is extensively used for bedding purposes.—Vick's Magazine.

THE NEW SWEET PEAS FOR 1897.

NEVER before in the history of the sweet pea have there been so many new varieties offered by the seedsmen. The interest in the sweet pea the last few years has been so great, that every sport or chance variation has been seized upon, and in addition many specialists are working to produce new variations in shape and color by cross fertilization. The interest taken by sweet pea lovers in new kinds has stimulated the dealers to supply the demand, and some kinds have been sent out that are no improvement on existing varieties, and many are sent out too soon, before the type is properly fixed. The high prices paid for new varieties proves too great a temptation for the average grower to withstand, and varieties are sent out before they have got over the tendency to revert to the parent type, which is inherent in all variations, whether they originate from sports or are the results of scientific hybridizing. It takes several years careful selection and persistent "rogueing," or pulling out of all plants that do not come true to type, before a variation is sufficiently well fixed to be offered for sale as a new variety.

A very marked feature of the new peas of this season was their poor germinating power, particularly of the American varieties. Several of them did not grow at all, under circumstances that made it perfectly certain that the seed was at fault. Red Riding Hood and Maid of Honor were most vigorous growers, while along side of them in the very same soil, Brilliant and Creole did not have a single fertile seed. In their anxiety to save all the seed possible, the growers had evidently pulled the pods before they were properly ripened. Among the varieties of European origin only three out of fourteen failed to do well, while out of fourteen varieties of American origin, eight germinated badly, most of them a total failure. My experience is not at all in harmony with the claims of the introducers of the

American sorts, which were widely advertised as more vigorous, hardier and better suited to our climate than the foreign kinds.

In the following notes on the new sweet peas of 1897 is included what is known as Eckford's '96 set, as they were grown by so few Canadian gardeners last year, that they are practically new this season, and were not included in my notes on sweet peas in the January HORTICULTURIST. The only new varieties not noted below is an extra set of seven varieties sent out in limited quantity by Mr. Eckford, which, as far as I know, have not been grown in Canada this year, and only to a very limited extent in America.

Eckford's '96 set consists of six kinds, Little Dorrit, Captivation, Alice Eckford, Crown Jewel, Mikado and Countess of Aberdeen.

Little Dorrit is an improved form of that old favorite Blanche Ferry. It is slightly lighter in color, decidedly larger, but unfortunately has the same defective form, the standard is too wedge shaped and too much reflexed to come up to the modern standard of excellence. It has the same tendency as Blanche Ferry to sport into a strain with rosy pink spots on the back of the wings, and sometimes on the standard as well. It is a sufficient improvement on Blanche Ferry to supplant it.

Captivation—Large size and fine shell shaped form, a strong vigorous grower, the color a rosy-purple. While not agreeable to some, is very striking and unique. It is more like Dorthy Tennant than any other of the older varieties.

Alice Eckford—One of the most vigorous growers and most profuse bloomers in my collection. Standard straight, cream colored, faintly streaked reddish-pink, wings cream, hooded. A very handsome flower, one of the most desirable of the set.

Crown Jewel—Good size and form, standard slightly hooded, pale pink tinted and veined with rose, wings cream tinted pink, very broad, a handsome flower.

Countess of Aberdeen—A lovely shade of soft flesh pink in both standard and wings, the standard very much curved forward at the sides, running to a point at the top, wings over-lapping at the top, almost pointed at the sides. Much the same shape as Royal Robe, but a more delicate shade of pink, and a much more profuse bloomer.

Mikado—A seedling from Mrs. Joseph Chamberlain, said to be an orange cerise striped white. With me it was very variable in shape and color, some had hooded and others expanded standard, often both on the same spray, in color it varied from clear rose pink veined carmine, to rose pink streaked white, and some were as light as Mrs. Joseph Chamberlain, evidently sent out before it was well fixed in type, at its best the poorest member of the set, and not worth growing.

Eckford's '97 set also consists of six members :—Coquette, Lovely, Prima Donna, Mars, Royal Rose and Countess of Shrewsbury. Of these the finest is *Coquette*, considered by many to be the finest of all sweet peas. Large size and fine hooded form, the stardard close to the wings, curved forward at the sides, of a charming shade of primrose, flushed lavender, wings clear primrose. A strong vigorous grower, stalks long, frequently four flowered.

Lovely—A beautiful shaded shell pink of good size and fine hooded form. Changed shape and color considerably the latter part of the season, the standard became more expanded and the

color verged on rose pink, which rather took away from the beauty of the flower.

Prima Donna, next to Coquette the best of the set, a very beautiful shade of shell pink, sometimes flushed lavender, standard large and slightly hooded, wings very large and expanded, stalks long, three to four flowers, a more uniform color than Lovely.

Royal Rose—Another pink, while of large size is not an attractive shade, a rose pink with darker veining.

Mars—Though not perfect is upon the whole the best red to date, being much larger and finer form than Firefly, the best of the old reds. It is rather variable in shape, the standard generally hooded, is sometimes expanded, its weak point is that the color, a cherry scarlet, does not hold well with age, turning a dull red before fading.

Countess of Shrewsbury, should never have been sent out, being anything but attractive either in color or form, standard small and reflexed, and color a disagreeable shade of light reddish mauve.

The only other European novelties in the market were Lorenzs' striped Celestial, which did not germinate with me, and Cannell's Sultan, of which a few seeds grew, none of them being true to description.

What might be called Burpee's '97 set contains one-half of the new American varieties, and by far the best half, consisting of Aurora, Maid of Honor, Golden Gate, New Countess, Creole, Brilliant, Red Riding Hood and New California.

Aurora—A seedling of Mrs. Joseph Chamberlain, is as large and as fine form (but no better) as that grand old sort, differing from it in being streaked salmon instead of rose pink, a unique color and a decided acquisition, a weak germinator, not half of the seeds growing.

Maid of Honor—A selection from Butterfly, is an attempt to get rid of the objectionable notch at the sides of the standard in that old favorite. It is only a partial success yet, as many of the flowers are the very same shape as Butterfly. When true it is a decided advance on that variety, and will take its place, being much more vigorous and a very free bloomer.

Golden Gate, is evidently also a selection from Butterfly, being much like it in color; and somewhat of the same shape. The distinguishing feature is the shape of the wing, which instead of enveloping the keel, stand straight and erect—like two gate posts—folded at the sides only; this peculiarity is not constant, as frequently one of the flowers in a spray will have the old type of wing, a strong grower and profuse bloomer.

New Countess—A selection from Countess of Radnor, no improvement in shape or size over that variety, but a finer color. The hot suns of America have developed an objectionable reddish mauve tint in that good old sort, which it did not possess when originally sent out by Eckford. New Countess is an attempt to get back to the original color, how complete the success. I can not tell from my own experience, as only one seed grew out of thirty planted, the flowers on my lone plant had a slight reddish shade on the standard, though not nearly so much so as in Countess of Radnor.

Creole—A seedling of Lemon Queen, same size and shape as the parent, but a beautiful shade of pale lavender, a very handsome flower.

Brilliant—Said to be a bright scarlet. Is not a scarlet at all, but a peculiar shade of red, might be called a

cherry crimson. Not a seed germinated of either two above sorts, with me. I was indebted to friends for specimens.

Red Riding Hood—This is a flower that no one would think of growing after seeing. It is an ugly abortion that does not deserve the name of sweet pea, neither in form nor color is it attractive. The standard is only about half the size of the wings, clasps them close behind, and is only visible when you look at the back of the flower. The wings are rose-pink, verging on magenta, shading to a dirty white at the base, and nearly enclose the bluish white keel.

New Californian—An unnamed seedling sent out to customers for trial by W. A. Burpee & Co. This is a decided acquisition, somewhat in the style of Butterfly, it has more color than that variety, the white ground of the standard is heavily flushed dark lavender, becoming darker towards the centre, in some flowers almost purplish red, wings lighter in color with darker edge. Standard much incurved at the sides, running to a point at the top, frequently notched at the sides as in Butterfly, needs selecting to get rid of these notches, and the tendency to purplish red. When true a very handsome flower and a good buncher.

Golden Gleam—Sent out to customers by the Sunset Seed and Plant Co., of California, is by far the best addition made to the list this year by American growers. Of largest size, finest shell form and a beautiful shade of clear primrose, nearer yellow than Mrs. Eckford or Primrose, and larger and finer shape than either of them. Only one seed grew of those sent me, but that one made a vigorous plant, covered with flowers from early in July till frost came.

All the other American novelties, five in number, Coronet, Columbia, California, Emily Lynch and The Bride, were introduced by the Rev. W. T. Hutchings, all of them, except Emily Lynch very poor germinators and weak growers, by far the best of the set is

The Bride—A very fine white, not quite as large as Blanche Burpee, but finer shape, and much superior to any other white in the market. It is said to be a seedling from Mrs. Eckford, and retains a trace of the parent color for a few hours after opening, but soon becomes a pure white, of fine substance and beautiful shell form, its weak point is poor germinating power, only about ten per cent. of the seeds planted grew.

Coronet resembles Aurora in color, but is not so fine a shade, and is much inferior to it in shape and vigor, the standard is too much reflexed and inclined backwards at the sides, which takes away from the apparent size, germination very poor, only two seeds grew out of the package.

Columbia—Said to be a red, white and blue, not well fixed yet, in most of them the standard was bluish white, streaked rosepink, the wings clearer whites lined lavender blue, but in many of them the pink was very faint, needs selecting, fairly fertile and vigorous.

California—A pale, delicate creamy pink, standard small for the size of the wings, which are very large and spreading, somewhat like Countess of Aberdeen, but inferior to it, a poor germinator and weak grower.

Emily Lynch—Came in two distinct flowers, one with rose pink standard and pale wings, not unlike Duke of York, the other with cherry-pink standard laced darker and white wings, both of the same shape, erect standard and spreading wings, good germinators, fairly vigorous and profuse bloomers. There

were also in the market two sets of new peas sold in mixed packets one called Flambeau seedlings by Rev. W. T. Hutching, containing about half a dozen varieties all good but not of special merit. The other Burpee's American seedlings of much higher quality and greater variety, some of them well worthy of names, and will no doubt be offered separately next season as new varieties. Among them were some very fine pinks and salmons, notably one like Venus in color, but much larger and finer form.

The introduction of so many fine varieties of which at least a dozen are worthy of a place among the best 24 sorts, makes necessary a revision of the lists of best varieties recommended in the January HORTICULTURIST. As a result of my experience this season, if limited to 12 kinds I would grow the following:—

Blanche Burpee, white; Golden Gleam, primrose; Coquette, primrose and lavender; Princess May, lavender; Katherine Tracy and Prima Donna, pink; Aurora, Ramona and America, striped; Maid of Honor, white and lavender; Mars, red; Stanley, maroon.

For a second twelve I would add the Bride, white; Little Dorrit, rose pink and white; Alice Eckford, creamy white and pink; Countess of Aberdeen and Lovely, pink; Duchess of York, white flushed pink; Day Break, red and white striped; Lottie Eckford, white and lilac; New Countess, lavender; Lady Beaconsfield, salmon pink and primrose; Venus, salmon pink; Senator, chocolate and white striped.

R. B. WHYTE.

Ottawa.

SHOWING CUT FLOWERS AT FAIRS.

THE cuts shown herewith give a hint as to a practical method of showing cut flowers at fairs, its special feature being the possibility of keeping the flowers in water, and still having

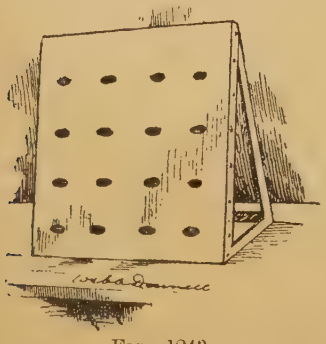

FIG. 1243.

them where they can be most readily seen. A frame of laths is covered with stout white paper—heavy drawing paper being suitable for this purpose. Oval openings are made, as seen in Fig. 1243, through which the stems of the cut flowers can be passed into the little flat tin broma, or cocoa cans that are glued to the back of the paper just below each opening, as shown in Fig. 1244. These cans are water-tight. At the front, below each opening, can be written or printed the name of the flowers above, with any information that may be desired. Such a frame will do duty for many years, for on each new occasion for its use a sheet of thin white or neutral-tinted paper can be pasted over the face and openings cut in it.—American Agriculturist.

FIG. 1244.

SOME PRACTICAL POINTS IN BULB CULTURE.

IF we would meet the early snowdrops and crocuses, the gaudy tulip, and the princely hyacinth, with their companions, in the garden in the spring, we must become fall planters. Because autumn does not to many seem the right time for garden-making, no doubt many lawns and flower gardens are without these most charming flowers that otherwise would have them. There is no good excuse for this, it is just as easy to make up and plant flower beds in September or October as it is in the spring. In fact it should be easier to plant in the autumn, because usually there is less crowding of work than in the spring.

The great value of the hardy bulbs in extending the season of bloom in the garden, makes it inexcusable not to have them in abundance. Without this class, the lawn and flower beds are bare of bloom for several months in the spring, before they are occupied with the regular summer flowers. This state of things is oftener found in the handsome lawns of our towns and cities than in the country. It means one crop of bloom in the season, when with autumn planting the same beds could have succeeding crops, from early until late. Nor must we overlook the fact that of all our garden flowers, the sweet, beautiful Dutch bulbs, coming in the lovely springtime when nature draws us to the garden, excel all others in delightful qualities. And it is not in the garden alone that the advantages of this class of bulbs most strongly appear. Inasmuch as the season of bloom follows very quickly after warmth sufficient to start the growth sets in, they are matchless among flowers suited to home culture in winter; whoever can succeed in growing any kind of house plants may without hesitation undertake the culture of hardy bulbs in the window, for the culture of no others is easier. With the hardy bulbs at our command, there is no excuse for not having an abundance of the most delightful flowers in our homes, during the winter and spring.—Vicks Magazine.

NELUMBIUM SPECIOSUM.

SIR,—A neighbour of mine made a water pond, and planted it with hardy water lilies. Among them was Nelumbium speciosum, or Egyptian lotus; and it winter killed, while the rest all lived and are doing well. What is the proper way to winter it in this section, West Nissouri?

JOHN MCAINSH.

This plant is not hardy without protection, but its beauty is sufficient to tempt one to experiment with it. It should be grown in tubs placed in shallow water, and these tubs can be stored in a cellar during the winter In warmer countries they can be grown in warm tanks or ponds in the open, but our climate is too severe for that. Even in the vicinity of Paris, France, a glass cover is placed over the tank, and throughout winter a covering of straw, or some other protecting material, as well. In this journal for 1893, page 181, Mr. L. B. Rice's success with our American water lilies, grown in tubs, is referred to. He cuts a kerosene board in two, places six inches of clay in the bottom and two or three inches of lighter muck on the top of this. He then sinks the tub in the lawn, plants the rhizomes firmly in the bottom, and fills the tub with water.

Regarding N. speciosum, we may further add that it is the Egyptian Bean of Pythagoras, and is a native of Asia, whence it was introduced to England about one hundred years ago. The flowers are white, rosytipped, fragrant, and about one foot in diameter. N. luteum (yellow) is the American species, indigenous to the West Indies and the Southern United States.

HYACINTHS AS WINTER BLOOMERS.

HYACINTHS are sure to bloom in winter, if treated intelligently, under any circumstances, if keeping them too warm may be excepted. The bulbs can be planted at any time from the first of September until Christmas, and will bloom in from 10 to 12 weeks after planting.

Three bulbs may be put into a six-inch pot, or they do as well planted singly in four-inch pots. Any good garden soil is suitable for hyacinths, although if heavy or clayey, the addition of sand or leaf mould is desirable In planting do not press the bulb down into the soil, but make a cavity a little larger than the bulb, in the bottom of which place a teaspoonful of sand, if obtainable, on which set the bulb. Draw the earth around the bulb and press firmly, using enough to just cover it. The roots of the hyacinth start from the bottom of the bulb, and if it is pressed down into the soil, the roots will have difficulty in penetrating the compacted earth and the bulb will be thrown out of the soil when the roots start to grow.

After the bulbs are potted, water and put in a cool, dark location, preferably a cellar, but any place where they can be kept cool and dark will answer. Cover the pot to protect from rats and mice, water occasionally if the soil dries out. When the tops have grown two inches high, bring to the light and after a few days give them sunshine until they bloom. The blossoms will last much longer if the sun is not allowed to shine directly upon them.

To insure the best success with hyacinths in water, first plant in soil as above directed, and when the flower buds show, give the earth a good soaking, carefully lift the bulbs, and gently wash away the soil that clings to the roots by moving the bulbs carefully about in a dish of tepid water. Put a few bits of charcoal in the hyacinth glasses and fill nearly full of soft water, and place the bulb in position, with the base not quite touching the water. Bulbs prepared in this way give much better satisfaction than if started in the glasses, as the flower stalks are more robust and the blossoms larger and more enduring.—Eva B. Dunham, Maine, in American Agriculturist.

REX BEGONIA.

A CORRESPONDENT complains that Rex Begonia loses its leaves one after the other and is generally unhealthy. Is your plant in a sunny window or shaded? Strong sunlight is injurious to the Rex Begonia; a north window suits it best. Do not allow water to stand in a saucer under it, as it would be fatal to it. Be careful not to let water stand on the leaves of this family as it will rot them, and the plant should have room enough for the air to circulate around the foliage. Only repot them when the ball of soil is crowded with roots. Keep just moist, and water over the top of the pot; if allowed to dry out it will also drop its foliage and take some time to recover from the shock. In this case water sparingly until new foliage is made.—H. E. Goold, in Co-operative Farmer.

PERMANENT PLANTING OF HARDY BULBS.

THERE are many beautiful hardy bulbs that will take care of themselves in the border, and no flower garden can afford to be without them. Perhaps one of the showiest is *Tulipa sylvestris*, a group of which makes, in its clear bright yellow flowers, one of the prettiest displays imaginable, in April and May. The leaves are narrow and prettier than those of the kinds usually planted for temporary effects; the flowers are quite fragrant. There are a number of others that would doubtless do as well and be equally as interesting.

Many of the Narcissus thrive undisturbed; but one that has given the writer considerable pleasure *N. biflorus*, a pure white hybrid, blooming in May. As the name implies, two flowers are usually borne on one stem. It is deliciously fragrant, and very much like one of its supposed parents, *N. poeticus*.

Although by no means as showy as those already mentioned, *Leucojum æstivum* should perhaps be ranked as next in attractiveness. The individual flowers are small, bell-shaped, opening two or three at a time on one rather tall stem, and gracefully drooping; the color is of a good white, greenish at the base on the outside. They are excellent for cutting, lasting well and opening buds. Blooming in late spring, they complete a nice succession.

The well-known snowdrop is one that cannot be dispensed with *Galanthus Elwesii* is said to be the best, though the writer's experience has been confined to the common species, *G. nivalis*. This frequently blooms in Philadelphia, before the close of winter, a few days of warm sunshine bringing out the tiny flowers, which droop modestly as though abashed at their early appearance. The last snowfall sometimes catches them, but without doing serious injury. This, with the *Leucojum* and well-known crocus, is all the better for being undisturbed for four or five years,—or until the increase makes them crowded. Planted 3 inches apart, and about 4 inches beneath the surface in deep, well-drained and enriched soil they will give greatest satisfaction.

While September and October are usually the best months for planting hardy bulbs, do not omit them because it is getting late and November is at hand. As long as the soil can be worked, they will generally do well,—in fact they have been occasionally placed in holes made in frozen ground. But this method is by no means to be advised. If the soil is heavy, a little sand should be placed under each bulb.—Meehan's Monthly.

DON'T MARKET THE CULLS.

There is one of the most important truths in the science of marketing in a nutshell. It is not only the "little cull peaches," but the little cull strawberry, the little cull cucumber, the little cull tomato, the cull cauliflower, the little cull of any and all vegetables and fruits that break down prices and destroy the markets. The worst thing about marketing culls is that they destroy the demand. After a family has had, say, a bushel of cull tomatoes, they don't want any more soon, if at all; whereas if the fruit had been first-class, it would not only have received a much higher price in the first place, but would have made a market at once for more; and so on through the entire list of vegetables and fruits.

The Canadian Horticulturist

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DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

ERRATA.—On page 379, instead of "I have a trumpet, etc., read as follows: I have a *triumph* for hybridizing . . . *in* some pure white seedlings . . . giving a quality of pure *whites*, practically unknown." We regret the three errors which occurred through this paragraph going to the printer at last minute, giving us no sight of the proof.—EDITOR.

APPLES are advancing to old time prices this year. Orchards in the Niagra district are being bought at $2 per barrel in the orchard including firsts and seconds. No. 1 apples are worth about $3 per barrel packed.

THE NEXT MEETING of the Ontario Fruit Growers' Association will be held in Waterloo, beginning Wednesday, 14th Dec., at 9.30 a.m. A feast of good things for fruit growers and flower lovers is expected.

FIFTEEN CARLOADS of tender fruits have gone forward to London and Glasgow markets, and the returns are anxiously awaited. If success can be attained in exporting these fruits, a new impetus will be given to the fruit growing industry of Canada.

THE PRICE of all fruits except apples have been ruling extremely low during the season of 1897, so much so that many growers are feeling quite discouraged.

PRESENTATION.—We note the honor to Mr. Jas. Lockie, president, Waterloo Horticultural Society, in the presentation of an elegant roll top desk in recognition of his good work as Managing Director of the Mercantile Fire Insurance Company at Waterloo.

THE PLANTS AND BULBS distributed

this fall by the Picton Horticultural Society constitute quite a formidable list, as follows :—1 Kentia Belmoreana Palm ; 3 Hyacinth bulbs ; 5 single Tulip bulbs ; 5 double Tulip bulbs, early ; 5 double Tulp bulbs, late ; 5 Crocus bulbs ; 5 Freesia bulbs.

THE CHERRY in Delaware is the subject of the Del. Expt. St. Bulletin No. 35. Regarding the pruning we make the following extract : "The pruning of the cherry orchard should be done during the first two or three years of its existence, after which only the dead and interlacing branches will need be removed. In general, the sweet cherry should be so formed as to give it a spreading habit. When the sweet cherry is allowed to grow without paying attention to its form, it assumes a spire-like shape, but if the head is started 3 to 3½ ft. from the ground, and the three or four main arms are pruned in for two or three years, the trees assume more of the spreading apple-tree form. The spreading form of tree has many essential advantages ; it facilitates the operation of spraying, materially reduces the cost of gathering the fruit, and of greater importance, it shades the trunk and lessens the danger to it from sun scald and from the bursting of the bark.

SAN JOSÊ SCALE FUNGUS.—Professor Rolfs of the Florida Experiment Station reports that he has discovered a fungus that promises to be of incalculable value, by destroying the San Josè Scale. He first noticed in 1895 a seeming mortality among these insects, and in 1896 specimens of diseased insects were transferred to an orchard two miles away, where the insects were flourishing, and in six weeks the same mortality became evident in that orchard also. Let us hope that this news is not too good to be true.

THE FRUIT EXHIBIT AT THE INDUSTRIAL was very good. The bottled fruit as usual attracted a great deal of attention.

MR. W. M. ORR was constantly at his post during the Industrial, showing interested observers his specimens of the San José Scale for the purpose of putting the public on their guard against this dreadful insect.

THE CONDITION OF THE FARMERS' WELL has been made a special study by Prof. Shutt, Chemist at the Central Experimental Farm, Ottawa. In the analysis of samples of well water sent in to him, he has found many injurious elements which would favor the development of malarial fever, typhoid fever, diarrhœa, sick headache and the like. Our readers should see that their wells are at a safe distance from contamination, and if at all doubtful, they should send samples to Prof. Shutt.

THE FRUIT FARMS OF CANADA is the subject of a very interesting article in the London Daily News, by Mr. Wm. Senior, one of the staff, who passed through the fruit district last September.

MR. J E. STARR of Nova Scotia, has been appointed by the Dominion, as agent to visit England and report upon the British market for Canadian apples.

CREDIT is due to Mr. John Craig for the excellent photographs engraved on pages 370 and 372, showing Beebe Plain and doctor Hoskins orchard. Credit is also due him for the report accompanying the pictures.

WOODALL & Co.'s Annual Diagram American and Canadian Baldwins sold

in Liverpool is interesting. The total number of barrels in 1892-3 was 799 thousand; in 1893-4, 110 thousand; in 1894-5, 857 thousand; in 1895-6, 438 thousand; and in 1896-7, 1599 thousand. The lowest average for Canadian Baldwins was in March '97, viz. 9/, and the highest in March '95, viz. 30/.

THE FIRST EXPERIMENTAL SHIPMENTS of tender fruits in cold storage to England, of this season did not meet with the hoped for success. The temperature on steamship was too high to carry Crawford peaches and Bartlett pears without change of condition. On the Merrimac, leaving Montreal, Sept. 9th the temperature rose as high as 42°, and on the Sardinian it was 48° most of the voyage! What could be expected but failure of such cold storage as that with tender fruits like the above? The blame is due to the Steamship Company not carrying out Mr. Robertson's instructions, and we think the Company should be liable for damages. Notwithstanding the spoiled condition in which as they arrived, Bartlett pears sold as high as $1.25 a case (containing about 30 quarts), and tomatoes about the same. Peaches were in no condition to sell after being so long exposed to a temperature of 48° with a heat inside the packages of probably 8° or 10° higher.

The rate to Glasgow was only about ¾ a cent a lb., while that to London was about 1 cent. There are still eight or ten car loads to hear from and we hope to have better news for our next issue.

A STANDARD FRUIT CASE. — The Australian Colonies, according to the Agricultural Gazette, of Tasmania, have adopted a case for export of fruit, measuring 10 x 15 x 20 inches outside, for apples and oranges; and a half case, 5 x 15 x 20 for pears, grapes, cherries, plums and other soft fruit. The following good qualities are combined in this case: (*a*) Equal packing capacity with the old centre case; (*b*) more economical stowage on board ship; (*c*) requiring only such timber as can be easily and cheaply provided; (*d*) of such size, weight, and shape as to minimise risk of damage in handling; (*e*) offering equal facility for packing large or small fruit.

The Canadian shippers who have been making up the trial shipments of fruit in cold storage for London and Glasgow markets, for the Department of Agriculture, have agreed upon a very similar package. Our standard apple box measures 11¾ x 11¾ x 23½, a most convenient size for storing on shipboard, being about two cubic feet. The space occupied by such a package is easily computed, and no matter whether piled crosswise or lengthwise, it packs equally well. For pears and tomatoes, a half case will answer, but for peaches and grapes, about one inch shallower would be preferable.

GRAPE WINE.—Pick the grapes off the stems and mash with a potato pounder, allowing a pint of cold water to every quart of grapes *before* they are washed. Then add the water and let stand for three days, stirring each day. Strain through a jelly bag, and the following day pour off carefully from the sediment, and add three pounds white sugar to every gallon of juice. Put into large jars *loosely* corked to allow it to ferment, and at the end of three weeks (if it has done fermenting) add one quart of whiskey to five gallons of liquid. In three or four days bottle it, corking tightly. While the wine is fermenting the jars must be *kept filled* with some of the liquid reserved for the purpose.

⁂ Our Affiliated Societies. ⁂

Fig. 1245.—Photo. showing arrangement of Plants and Flowers in Centre of Hall.

Kincardine Horticultural Society.

On short notice, President A. C. Washburn and his board of directors set to work to hold a floral and horticultural exhibition in the town hall. The date was Friday last, afternoon and evening, and the success which attended the affair exceeded the most sanguine anticipations of the promoters. All day Thursday plants, flowers and fruits with a few vegetables were gathered from those who had an interest in the Society, and under the able direction of the president and Mrs. Washburn, willing hands in a very short time transformed the Town Hall into one vast bower of bloom and foliage. In the centre of the hall was an octagonal pyramid, having a diameter of about twelve feet, and towering up to about as many feet in height. This was surmounted by a magnificent pot of Dahlias, while the sides contained potted plants, many of them possessing magnificent bloom and others beautiful foliage. Extending down the east and west sides and across the rear of the hall, were arranged tables which bore a wealth of plants and cut flowers, including everything that was beautiful in Palms, Begonias, Oleanders, Hibiscus, Fuchsias, Geraniums, Lilies, Cannas, etc, with a profusion of cut Roses, Gladioli, Asters, Dahlias, Sweet Peas, etc.

The show of Plums and Pears with a few Apples was very creditable, while the larger vegetables were represented by Pumpkins and Squashes. The stage was beautifully set with foliage and flowering plants. One striking feature of the exhibition was the results shown of the fruit spraying in Norman McPherson's orchard by Mr. Dewar, who conducted the spraying during the spring months under the direction of the Agricultural Department of the Ontario Government. Mr. McPherson had some branches bearing fruit on exhibition. Some were cut from trees that had been sprayed, and alongside were branches from trees that had not been sprayed. It was plainly to be seen that Mr. Dewar had done his work well, and the striking object lesson was taught hundreds, the absolute necessity there was to have fruit trees sprayed, if the best results were to be looked for from the orchard. The trees that had been sprayed bore fruit of good size, clean and free from scabs, while those that had been left without spraying had fruit that was dwarfed, ill-shapen and scabby. The Horticultural Society has been the first means in this section of showing, in a public way, the splendid results which follow the proper spraying of trees, and it is quite certain that the exhibition made by Mr. McPherson will cause many to follow in the good work illustrated by Mr. Dewar in a Kincardine orchard last spring.

In the evening the Town Hall was filled with an audience which highly appreciated the exhibition. During the evening President Washburn called the audience to order and presented an excellent programme of music. In a brief speech he recounted the organization of the Society in Kincardine, showed wherein the members had been greatly benefited by the distribution of plants, bulbs and trees, and the dissemination of such literature as the Canadian Horticulturist and bound volumes of the reports of the Canadian Fruit Growers' Association. The Kincardine Society had a membership of

between 60 and 70, and so pleased was every one of them, that all would become members for next year, and he would not be surprised if 100 additional names could be secured. Anyone who wished to give his name as a member should at once call on Mr. Joseph Barker, the Secretary of the Society, on himself, or any of the directors. The chairman also spoke of the advantages to be derived by the town, when citizens joined hands for the common purpose of adding beauty to our surroundings, whether it be in the orchard, the flower or vegetable gardens. This was the object of the Horticultural Society, and such being the case, very many of our citizens would be glad to give a helping hand. —Kincardine "Reporter," Sept. 23rd.

Annual Flower Show.

Durham Horticultural Society. — On Monday afternoon and evening last, (Oct. 00) thanks to the efforts of the Directors and Secretary, and many sympathetic members of the Horticultural Society a floral exhibit was made in the Town Hall which surprised even the greatest enthusiast in our midst. "Well done Durham," "Who would think Durham could show this," "Isn't it lovely," "Its just splendid," where some of the expressions used to faintly express the delighted feelings of the onlookers. We have heard many regrets from those who were unable to be present, those who forgot ! and from those who didn't know ! and it is certain that if anything of the kind is again attempted, a rush may be expected.

Mr. Gorsline, Mr. Firth, Mr. Arrowsmith and Mr. Thomas Brown were some of the chief workers, and they had a busy day of it collecting, and their labors were rewarded by the splendid exhibit. Perhaps with so much to do it was to be expected that some would be overlooked, but it was unfortunate, that some who had cut their best flowers by request should be forgotten in the collection. Next time a better system will prevent this little mistake.

Shall we attempt it ? To describe the scene ? Likely to be a failure, and our own account of necessity must be brief, the limitations being the lack of a Linnaean temperament and the abundance of our botanical ignorance.

A platform about 12 feet wide and 24 feet long was improvised on the top of the seats in the centre of the hall, and every part of this was covered with forms of beauty. Along the centre were ranged the larger plants forming the background of the banks of flowers on all sides. In front and nearest the spectator were boquets of cut flowers arranged with effectiveness as to color and variety. Here were found rich hued dahlias, beautiful asters and petunias and the sweetest of sweet peas. Some modest ferns interspersed, were suggestive in their green beauty of the coolness of their native home, as the evening was a warm one.

Geraniums were a large display and some brilliant specimens were seen, though one or two would stand some pruning to advantage. The tender drooping fuchsia hung gracefully, the gaudy gladioli glared their gladness and made the fiery cockscombs blush the deeper. Variegated phlox Drummondi made a bewitching display and the tuberous begonias captured all eyes. Over all this waved the fronds of the feathery palms, five kinds of which came from the greenhouse of Mr. Kelly. At each end of the centre row stood on guard large specimens of the harsh yet curious cactus, while were seen, first time for many specimens of cactus grafting, done by naturalist Firth. A profusion of "rat tails" grew out of a corn cob variety, and other fantastic specimens of the spiny tropical plant was there.

Of curious there was no lack. Here was the Norfolk Island pine, almost like our balsam, the Australian silk oak, whose slender form did not suggest the ruggedness with which we associate the oak, a ginger plant, a banana tree doing well far from home, plants called dracena and acacia and the fleshy-leaved rubber plant, all being supplied by the enthusiastic florist Mr. Kelly. Mr. Thos. Brown showed a lemon tree 22 years old, which, two years ago, had undergone a life and death struggle with king frost but was victorious ; he had also a tobacco plant.

The band delighted the ear while the sense of sight and smell were being gratified.

Many specimens of plants from seeds supplied by the Society were shown.—*Durham Review.*

Desoronto Horticultural Society.

The Desoronto Horticultural Society was organized in December last, under the Agricultural and Arts Act, 1895, and is therefore less than a year old ; but although young, it is a strong and active Society, and has been doing something ever since it started. This year it has already made three distributions of seeds, plants and bulbs worth more than double the membership fee ; it has given lectures and has had valuable papers read at its meetings, most of which have been published in the Tribune ; it has distributed good and interesting literature on horticultural and entomological subjects and has advocated the best and most approved methods of combating and overcoming fungus and insect diseases of plants and trees. The directors had some doubts as to the advisability of holding a flower show this fall ; and they had many reasons against it, amongst which were the youth of the Society, the inexperience of many of the members in preparing plants for show, the failure in the growth of numerous plants owing to extremes of temperature throughout the summer, and the lateness of the season. But they decided that if the flower show was to be an annual affair, the first year of its existence should

inaugurate the institution, and the citizens of Desoronto are very much indebted to them for that decision.

The directors and officers are deserving of great credit for the prompt manner in which they acted upon their decision. Their first meeting on the subject was held on Saturday evening, 18th Sept. On Monday morning the prize list and rules were in the hands of the printers, by Thursday morning following they were printed and bound and by Friday they and the complimentary tickets were in the hands of the citizens.

The show was held in Union Hall on Friday afternoon, from 3 until 6, and in the evening from 7 until 9. The hall was tastefully decorated for the occasion, and on entering the building, everyone was pleasantly surprised at the brilliant display at this late season of the year, and perhaps none more so than the exhibitors themselves. At the back of the hall, above the platform, was a broad band of evergreens, in the centre were the initials D. H. S., worked in rich yellow Marigolds by the president, while over them and stretched all the way across the hall, British ensigns were festooned in graceful folds. To the left as one entered the building, was a fine display of farm produce, exhibited by James K. Mitchell, the background being Corn stalks ; there were some immense Squash, Pumpkins, Mangolds, etc., and also some fine specimens of grain. To the right was a fine collection of Greenhouse plants, shown by E. W. Rathbun ; noticeable amongst other beautiful things, was a magnificent specimen of "The Crown of Thorns," which attracted great attention and was much admired. Alongside this collection was a collection of Cacti by the same exhibitor, in which was a very fine specimen of the Night-blooming Cereus. Three tables ran the whole length of the hall ; on the centre table there were some very fine exhibits of Grapes, Apples, Pears and Plums, also a fine show of vegetables. H. Townsend's collection which took first prize, was very nicely arranged, and Jas. K. Mitchell's made a splendid second. C. Bennett showed some fine specimens of very large Tomatoes, they looked good enough to eat. The Cabbages, Savoys, Parsnips and Beets were good, but the show of Celery and Brussels Sprouts was poor.

On the table to the right was a fine show of cut flowers, some tastefully arranged in bouquets of garden flowers and bouquets of wild flowers ; there was nasturtiums galore and very fine ones too, also some fine sweet peas, the beautiful, pure white sweet peas, of the Emily Henderson variety took 1st prize. There was a good show of geraniums of all shades from deep crimson and bright scarlet to pure white ; some pretty spikes of hybrid gladioli were also shown. Asters, zinnias, balsams, pansies, roses, carnations, dianthus and stocks were well represented, but being so late in the season, the Verbenas were poor. On the same table were shown the Amateur Exhibits of plants, and judging from the grand display made there must be many ardent lovers of flowers in Deseronto. It would be almost impossible to single out plants that were specially worthy of mention, they were all so good, but we will have to notiee a very fine specimen of Maidenhair fern, a Lilium speciosum roseum and the collection of begonias — Rex, Maculata and Tuberous. There were some fine coleus, cannas, geraniums and hanging baskets. The Professional exhibits were shown on the table to the left, and the first thing one noticed was a very fine design by C. Bennett ; the ground work was the white blossoms of the Sweet Allysum with the letters D. H. S picked out in Zinerarias, yellow dahlias were placed at the corners and a pretty border worked all around it. The display of plants was good. Some fine specimens of ferns, tuberous and Rex begonias, etc., were here in bewildering profusion. The upper portion of this table was devoted to collections of fruit. E. W. Rathbun's collection was very fine, also H. Townsend's which won the Leslie prize On the centre of the platform was a grand collection of greenhouse plants shown by Mrs. F. S. Rathbun. It was composed of very many beautiful and valuable plants, the names of which are quite beyond the layman, and we will have to hope that the Horticultural Society will so educate us, that these grand names will be as familiar to us, as household words. Behind this collection and arranged on a terraced stand was a grand collection of palms and coleus exhibited by Mrs. E. Walter Rathbun and James K. Mitchell. To the left was a fine display of plants by C. Bennett, flanked by some grand specimens of palms by Mrs. F. S. Rathbun, and a fine jasmine in full bloom by H. Briscoe. To the right was the ice cream stand, where there was a profusion of flowers and an abundance of grapes, cakes and ice cream, which were supplied by the fair hands of the President and the lady directors to the eager throngs that besieged the stand throughout the evening. The background of the stand was a splendid collection of palms exhibited by E. W. Rathbun, who also supplied the two immense rubber plants which were placed on either side of the platform. In the evening the Citizens' band occupied the gallery and discoursed sweet music, and the Society feel deeply indebted to them for their assistance in making the Flower Show the most successful event of 1897, in Deseronto.

Smith's Falls Horticultural Society.

When a little less than a year ago, Dr. McCallum called a me ting of those interested to organize a Horticultural Society in Smith's Falls, the response was not so hearty as might have been expected, only about two dozen gentlemen putting in an appearance at the Town Hall. The society was organized how-

ever, and Dr. McCallum was elected President. Since then, owing to the energy and earnest work of the president, the society rapidly increased in membership, until to-day it numbers on its roll 146 members, with a splendid Board of Directors, and may now be called one of the most flourishing in Ontario —and the interest in its welfare is increasing.

On a recent Thursday afternoon and evening the first exhibition under the auspices of the society was held in the Town Hall, and so successful was it both in the way of attendance and display, that it had to be continued a second afternoon and evening so as to give all an opportunity of viewing the hundreds of rare and beautiful plants; the splendid collection of fruits, the handsome paintings and the very attractive display of fancy needle work which had been so very carefully and tastefully arranged. The only trouble in connection with the exhibition was the lack of sufficient room in which to display the many plants so generously supplied, and indeed many who had been asked to allow their plants on exhibit were not called upon by the collectors for the simple reason that the supply was too great for the room at the disposal of the society. To the ladies who so kindly lent their time and attention to the arranging of plants, as well as to the contributors the thanks of the people are due. We will not attempt a description, sufficient it is to say that every one was more than delighted with the splendid exhibit, and the very pleasing entertainment in the evening.

Each member of the society was to receive a collection of one dozen bulbs, but owing to some delay they did not arrive in time, and in fact have not yet arrived, but when they do they will be promptly distributed among the members.

The society is to be congratulated on this its first public exhibition, and next fall if a suitable place can be secured a much grander display of plants, flowers, fruits, works of art, etc., may be looked for.

Open Letters.

Discouraging.

SIR,—As the fruit season is now in full blast, the question rises as to where we had better ship our plums and pears. We receive circulars from many commission men asking for consignments, and ship to them hoping for good returns, but alas,—as an example, we shipped twenty baskets of beautiful Clapp's Favorite in No. 1 condition, and all that we have heard is that they sold at 25 cents a basket, just enough to pay the freight, commission and basket. Plums are no better. On the same day the daily papers quoted pears from 40c. to 60c., and plums 45c. to 70. I think a change in the mode of marketing our fruit is absolutely necessary, and that some men will be honest enough to give us back the cost of picking. A great many of the apples in this district are badly spotted and cracked, especially were spraying was neglected. One quarter of a crop will be all that will be harvested.

R. L. HUGGARD, *Whitby, Ont.*
August, 1897.

Flowers Blooming in the Beaver Valley.

On the 2nd of November we received a box of flowers and fruits from Clarksburg, from our old friend Mr. C. W. Hartman; accompanied by the following lines:

"SIR,—By same mail I am sending you some fruit and flowers gathered out of doors to-day, (Nov. 1st.) The pansies, sweet peas, and verbenas are from the garden of Mr. Jas. Walker, our local florist, the balance are from my own place, and had time permitted I could have collected many more perfect specimens in Clarksburg and Thornbury.

"The HORTICULTURIST has taken considerable interest in the "Beaver Valley' as a fruit district, and I merely send the samples to show that even at this late date, we have plums, grapes and flowers uninjured by frost, and until lately tomatoes on the vines in my own garden."

Our Fruit Table.

We desire to acknowledge the following fruits:

Oct. 20.—FROM THOMAS BEALL, LINDSAY: seven varieties of apples. No. 1 slightly resembles Snow; No. 2 is probably Gravenstein, but deficient in coloring; No. 3 is Shiawassee Beauty; No. 7 is a seedling from Township of Stanhope of great beauty, and of considerable merit as a cooking apple.

Oct. 20.—FROM A M. SMITH, ST. CATHARINES, *Smith's October plum*, in good condition; fruit medium size, roundish, skin thin, dark purple, with greyish bloom; flesh dark yellow, tender, juicy, flavor rich, sweet and very agreeable; Campbell's Early grape in good condition, but inclined to loosen from the stem. Mr. Smith says: "I enclose sample of Campbell's Early grape received about three weeks ago or more from Geo. Gosselyn, of Fredonia. It is going to be valuable. I think he claims it is as early as Moore's Early, a better grower, good foliage, good quality, a good cropper and first-class shipper."

Question Drawer.

Diseased Plum Leaves.

969. SIR,—In July, '96 I found the leaves on one branch, of several plum trees, looked as though they had been painted with exceedingly thin white paint. In August they became spotty and ragged and fell off early in September. This year *all* the leaves on those trees are diseased with the same thing. I enclose a sample of them and wish you would be kind enough to tell me what ails them.

Reply by Mr. John Craig, Central Experimental Farm, Ottawa.

The plum leaves forwarded by Mr. Magor are affected by a leaf rust known as *Puccinia pruni-spinosa.* They are also affected to some extent by the leaf form of fruit rot—*Monilia fructigena.* Plum foliage has been very generally injured by these two diseases the present season. Also by Shot Hole fungus, another very injurious trouble. All these diseases may be prevented by timely spraying with Bordeaux. It will pay growers to use Bordeaus mixture in their plum orchards much more freely than they have done so in the past. Loss of foliage means a depreciation in the quality of the fruit, and much of the fruit this season is both undersized and poorly coloured. This is principally on account of the falling off of the leaves early in the season.

Ripening Tomatoes.

Mr. C. W. Young, of Cornwall, writes: —It is too late to be of use this year, but the best way to ripen tomatoes is in a cold cellar, without much light. They ripen solid, with good color and flavor, while if put in the sun, as is usually the case, they are watery and without full flavor. This was given me by a friend from the Northwest territories, where it is usually impossible to ripen tomatoes outdoors. I tried it with a few baskets this fall, and was more than pleased with the result.

Cecropia Moth.

970.

The Editor
Can. Horticulturist
Grimsby.

Grimsby Ont.
Oct. 1st. 1897

Dear sir,

I would like to ask you a few questions about insects I managed to capture a full grown larva of the Cecropia moth. About the middle of Aug. On its back there were 3 or 4 batches of small white eggs between the prickles, and I want to know wether these are its eggs or not. Does it go into its cocoon and leave them there to hatch, and come out on the tree. What is the best way to kill it when the moth hatches. I have managed to capture four chrysalises of the Papilio Philenor, and I would like to know when its eggs are laid, and what color the butterfly is. I am a little boy aged nine, and hope it will not be too much truble for you to answer these questions.

yours truly
George B. Pattison

FIG. 1246.—CECROPIA MOTH.

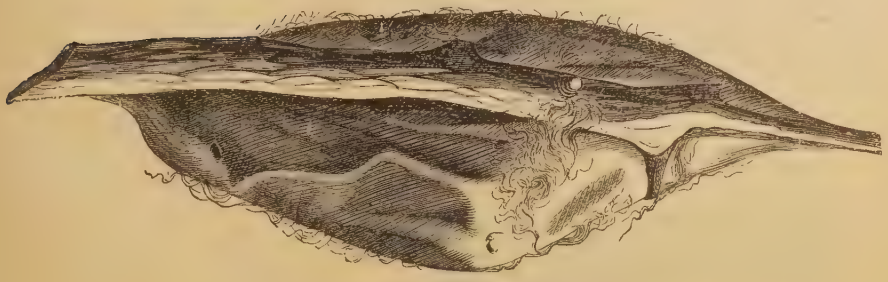

FIG. 1247.—COCOON OF CECROPIA MOTH.

FIG 1248.—LARVA OF CECROPIA MOTH.

Fig. 1249.—P Philenor.

It is very commendable in a boy of nine years of age, that he should become so interested in the study of insects as Master George. We will attempt to reply to his questions.

The eggs he found between the prickles of the Cecropia larva no doubt belong to the long-tailed Ophion a large yellowish brown Ichneuman fly. The eggs are deposited on the skin of the Cecropia larva, soon hatched out, and then sustain themselves by sucking the life blood of their victim. Such insects are called parasites, because they live at the expense of others, a despicable habit in men, but an important provision in the insect world. The larva of this fly is a footless grub and when the Cecropia moth goes into its chrysalis it spins its cocoon therein, and in the following spring escapes as a fly.

Of the genus Papilio, or Swallow-tail butterflies, there are about three hundred species known, but most of them are tropical. Only seven are found in Canada.

P. Philenor is black with whitish spots and a metallic green lustre on the hind wings. We hope that Master George will succeed in having his chysalis open out next spring, so that he may see one of those interesting butter flies for himself.

Fig. 1250.—P. philenor (larva).

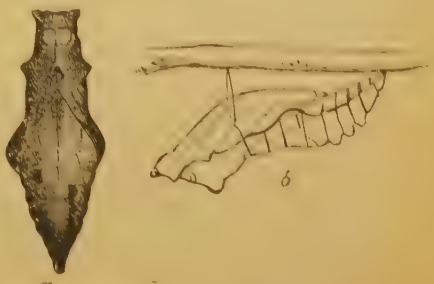

Fig. 1151.—P. philenor (pupa).

Shippers Loading First Car of Peaches for Foreign Market.

THE
CANADIAN HORTICULTURIST.

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THE EXPORT OF TENDER FRUITS.

AT the Annual Meeting of the Ontario Fruit Growers' Association at Kingston, in December, 1896, the advisability of making some experimental shipments to Great Britain of tender fruits, such as peaches, tomatoes, pears, grapes and summer apples was fully discussed. An address was given by the Hon. S. Fisher, Minister of Agriculture, for the Dominion, to the effect that the Department of Agriculture was desirous of assisting Canadian fruit growers in this enterprise, and would like to know just what provision would be needed.

A committee was appointed to reply to his enquiries, consisting of L. Woolverton, W. M. Orr, G. E. Fisher, A. H. Pettit, and E. D. Smith. This Committee met and recommended that shipments go forward during the month of August, September, October or later, of at least one carload per week, and of three or four carloads a week during the month of September; that cold storage would be needed at the point of shipment, as well as on the railway cars; that the varieties of fruit be as many as possible, and packed in the very best manner; that only the best stock be allowed to go forward; that an agent be sent to Britain to look after the interests of the fruit grower; that cold storage warehouses be erected at such points as can be agreed upon, where growers will furnish the amount of fruit required, and agree to buy over the warehouses at the end of three years provided the experiment proved a success.

At a meeting of representative fruit growers from Grimsby, Winona and Burlington, held at Grimsby on the 26th of January, two resolutions were passed, one asking for three warehouses, one at at Grimsby, one at Winona, and one at Burlington, each place to provide one-third of a carload per week; and another resolution which while approving of the former, recommended as a preferable scheme, the erection of one warehouse by the Department, and the guarantee to the shippers of a fair market price for the goods

The Department approved of the lat-

Fig. 1252.—Packing Fruit for Export.

ter scheme and decided to place one wharehouse at Grimsby, providing growers there would agree to provide the necessary fruit to make up one carload a week, and buy over the warehouse, provided the experiment proves a success.

Nine prominent growers of peaches, pears, grapes, tomatoes, etc., agreed to the scheme, and on the 7th of September the first shipment was made, consisting of Bartlett pears, Crawford peaches and grapes, for Covent Garden, London, England.

Our frontispiece shows these nine shippers loading the first car of these fruits, and a corner of the warehouse.

In all seventeen carloads of our choice varieties were sent forward, the last car leaving on the 12th of October, mostly loaded with grapes. The two markets chosen were London and Glasgow. The result of the season's experiment has been of great value, although not without considerable loss at the first shipments It has been proved that our Canadian Crawfords and Bartlett pears are just what the trade wants in England being identical with the favorite English pear *Williams* known in France as *Bonchretien.* Some half cases containing about 6 dozen each of this pear sent over on the steamer Georgia, arrived in excellent condition and sold about Oct. 1st for $2.30 per half case, or the equivalent of about $15.00 per barrel! This is sufficient to prove the market for such goods, especially for well-grown samples; while on the other hand, it has been proved that a second grade cannot be exported without loss. The first shipments arrived in an over ripe condition. This was not the fault of the growers, for the fruit was gathered very green, nor of the packing, as the papers state; for if the fruit men of Southern Ontario do not understand packing fruit, after a life-experience, it is passing strange; but of the temperature in transport, which was from 40° to 48° F.—altogether too high to carry such tender fruits without change of condition. For this reason the Crawford peaches were over ripe, and unsalable, and the Bartlett pears were also over ripe. For these fruits the average temperature in the refrigerator should be between 33° and 35°.

The first packages used (see Fig. 1253) were too large for peaches and pears, and too expensive, being bushel cases, each containing eight wooden trays, in which it was very difficult to pack fruit closely, so that it would not move about when shaken. Toward the latter part of the season a half case holding about six dozen pears, was adopted, which proved much more satisfactory, for while a case of Bartlett pears sold for 15/, a half case at the same sale brought 9/7. The temperature also of the later shipments was held somewhat lower, averaging about 38°. If this can be still further reduced perfect success will result. It will no doubt interest our readers to see some extracts from the account sales showing some of the lowest and some of the highest prices obtained for our fruit, viz:

Covent Garden, London, Oct. 21—(ex "Hurona," sold by Garcia Jacobs & Co.)

Duchess pears,	$1.64 to $2.19	per bushel case
D' Anjou	1.34	"
Louise	3.90	"
Howell	54 cts. to 2.07	"
Bartlett	72 cts. to 3 00	"
Early Crawford peaches,	1.25 to 2.44	"
Wager	1.58	"
Centennial	2.44	"
Quackenbos plums	3.77	"
Plums (other var'es)	60 to 1.15	"
Tomatoes	1.28 to 1.71	"
Rogers grapes	97	per case 45 lbs.
Delaware "	55	"
Concord "	24c. to 74	"
Worden "	25c. to 36	"
Niagara "	12c. to 47	"
Assorted "	22c. to 2.68	"

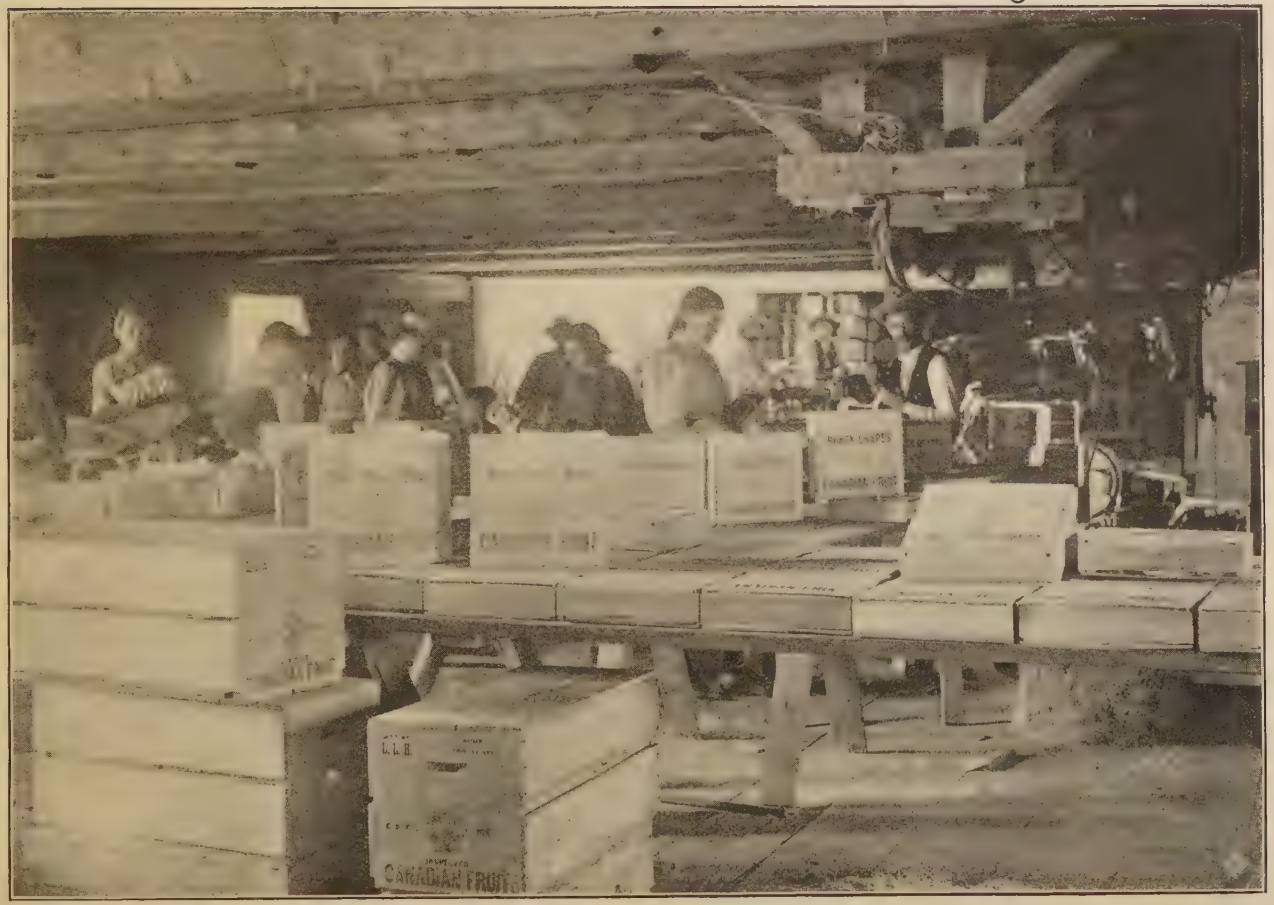

Fig. 1253.—First Fruit Packages for Foreign Shipment.

Glasgow, Oct. 15, (ex Kastalia):

Ribston apples	$1.02 to $2.50	per bushel case
Anjou pears	2.07	"
Flemish Beauty pears	2.00	"

Liverpool, Oct. 21, (ex Numidian.)

Crawford peaches	$3.66	per bushel case
Tomatoes	1.25	"

Grapes, all varieties, about one cent a lb.

It is worth noting that about the date above mentioned, California pears and peaches cease to arrive in Great Britain, thus leaving Canada a special opportunity to capture the market for these fruits from the middle of October onward. It will therefore be worth our consideration whether we cannot hold back our Bartlett pears and Crawford peaches in cold storage in Montreal until about the 10th or 15th of October before forwarding them. Also whether we cannot grow such desirable late varieties of pears and peaches as will suit the British Market at the time above mentioned. The Louise pear for example succeeds beautifully in Southern Ontario, especially when grown as a dwarf; and the same may be said of the Duchess and the Anjou. Another magnificent late pear is the Clairgeau, which would be one of the finest for the export trade. Even the much abused Kieffer would export in fine condition.

Tomatoes have succeeded as well or better than any other fruit, so far as condition is concerned, and prices have been good considering that the variety *Ignotum* was too large to suit the English taste. Some smaller, round smooth variety would give excellent results.

Grapes have been a complete failure, the fruit having been almost given away, the very best not bringing more than one cent a pound, the cost of transportation. The salesmen write: "The grapes are of no use here, the peculiar flavor not being very palatable; and in quality they are in every respect inferior to those grown in Spain and Portugal—thin-skinned, white, sweet grapes, which are brought here and sold from 4 to 6 cents a lb." A consignee in Liverpool, however, writes more favorably, and we hope yet to create a demand for our grapes that will ensure a profitable trade.

Peaches—In the export of this fruit there appears to be great possibilities both of loss and of profit. For example one shipment of one hundred and thirty cases of beautiful Crawfords reached Glasgow in such bad condition as to bring the shipper in debt $73, besides the loss of his fruit valued at $325, or a total loss of $398; and another shipment of 40 cases sold at an average of $3.66 per case!

Early apples were so great a failure this season that it was impossible to make up any cases fit for export. Next year, should the crop be first-class, some experimental shipments will be made, beginning with Red Astrachan and Duchess in August, Gravenstein, Ribston and Blenheim Orange in September; and Fameuse, Wealthy, King and Cranberry Pippin in October. These are all excellent varieties, of beautiful coloring which are bound to bring the top prices in any market.

Altogether we can report encouragement, although the season's shipments on the whole have been a serious loss. We have learned (1) to use smaller packages; with better ventilation; (2) the importance of lower temperature; and (3) that fruit should be placed in a cool room as soon as gathered, and cooled even before it is packed, in order to attain the best results.

With these conditions observed, we expect to report success next year, such as will lead to private enterprise in the export of our tender fruits.

HOW I GOT STARTED IN SMALL FRUIT.

WHEN I first thought of engaging in fruit culture as an occupation for recreation as well as revenue, I decided that the small fruits were what I should first plant, that I might receive some income as quickly as possible, as they were quicker to come into bearing than the stone fruits.

I wished to learn all I possibly could concerning the methods of fruit growing, and I knew that the surest and most effective way was to begin at the bottom and work up. So I purchased a few plants of most of the small fruits and began propagating the plants.

The way I got started in currants and gooseberries was to purchase a few hundred two-year-old bushes of the most reliable varieties of a responsible nurseryman and set them in November, before the ground became frozen.

The soil where I set them was made as rich as possible with rotten barnyard manure. The ground was plowed deep and fined well. The plants were set six feet each way that I could cultivate both ways with a horse; the plants were kept clean all summer, and by fall I had a fine growth of new wood.

In the last of September I took what cuttings there were on the five hundred bushes and found I had nearly 3000 of them. These I heeled in, with tops down, for a few days that the cuts might callus.

The ground where I was to set my cuttings was prepared similar to the way I prepared the ground the fall before, and made richer, if such a thing was possible, the ground was furrowed out into rows three feet apart and 7 or 8 inches deep. I stuck the cuttings along the rows at an angle of about 45 degrees and six inches apart, leaving about an inch or two to protrude above ground when the trenches were filled. The soil was tramped down solid about the shoots and left mounded up slightly that no water would stand about them.

When freezing weather came, I covered the ground with rotted manure, to protect the cuttings from heaving. As soon as spring came I started the cultivator and did not allow a weed to live the whole summer, and by fall I had a fine lot of year-old plants. These would have cost me over $50, had I purchased them from a nursery, while as it was, they cost me less than $10.

With the other small fruits, I did the same, buy a few, and from them propagate my own plants. The knowledge I have learned while performing this work, has more than compensated me for the extra time it took to grow the plants into bearing. I can say that I did not go at it entirely ignorant of the best methods, for I first spent considerable money for books and journals which treated fully upon this occupation, and am still reading all I can get hold of which will give me any new ideas.

B. A. WOOD.

Kalamazoo Co., Mich.

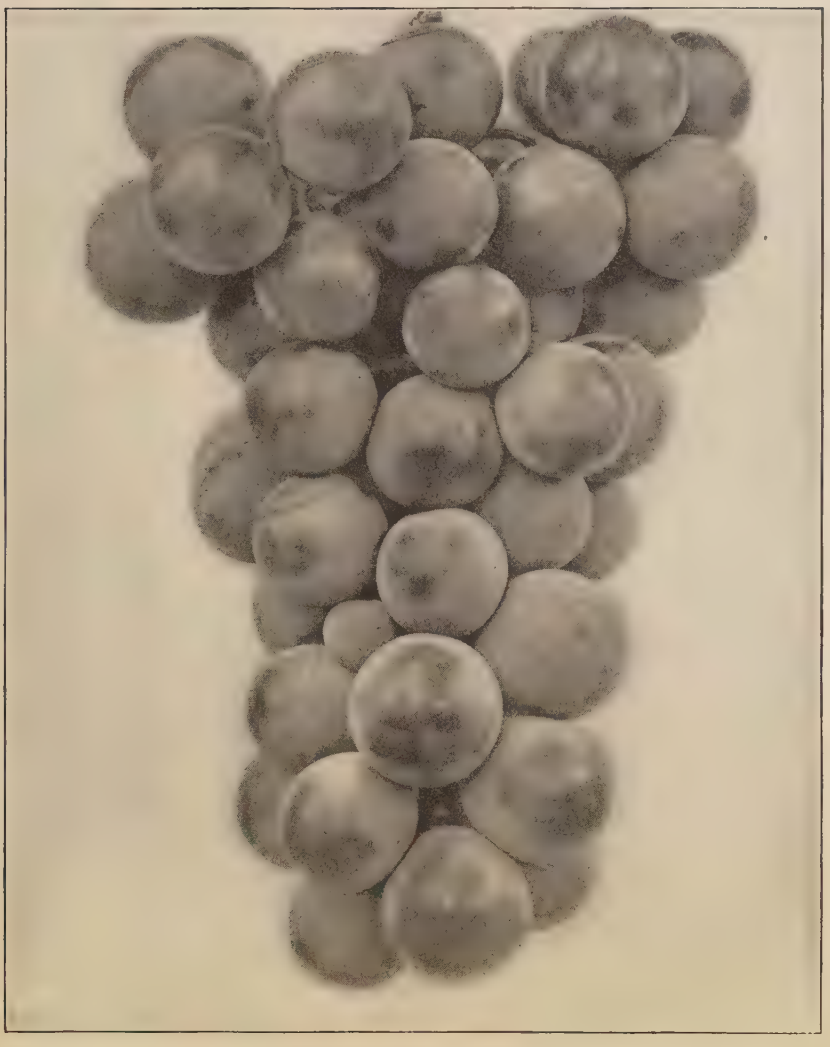

Fig. 1254.—Worden Grape.

A SEEDLING of the Concord, the Worden naturally much resembles that well-known variety, indeed the vines of those varieties are almost identical in character and appearance.

When first introduced it was thought to be superior to the Concord as a market variety for main crop, but it has proved to be superior only in its earliness, ripening a few days in advance of its parent. Otherwise it is not equal to the latter, for its skin is more tender, rendering it unfit for distant shipment, while if left hanging it cracks open very badly, and at the same time loses flavor.

Origin—S. Worden, Minnetto, N.Y., from Concord seed.

Vine; strong vigorous grower, with coarse stout foliage, dark green above, rusty underneath; very hardy, healthy and very productive, often yielding at the rate of three tons per acre.

Bunch large, compact, shouldered.

Berry large, black; skin tender, thin, with heavy bloom, cracks easily, flesh, sweet when well ripened, pulp tender, and loses flavor soon after ripening; a poor keeper.

Season, middle to end of September.

Quality, third rate for dessert purposes.

Value, second rate for near market, and 4th rate for distant market.

Adaptation—Well suited to the Northern sections because of its early ripening.

KEEPING FALL AND WINTER APPLES.

IN order to keep well, apples must be picked at the proper time. Care must be exercised in handling to prevent bruises, carefully assorting the ripe from the unripe, the perfect from the imperfect, and storing in a cool, dry place, with plenty of pure air free from all odors of decaying vegetables or other substances. The average fruit grower does not exercise enough caution in handling and assorting his fruit.

The degree of maturity will have much to do with the keeping qualities. A late fall or winter apple should be mature, but not ripe, when it is picked, if it is expected to be kept for any considerable time. The process of ripening is only the first stage of decay, and if this is allowed to continue before picking, till the apple is ripe, or mellow, this breaking down process has proceeded so far that it is a difficult matter to arrest it. As soon, therefore, as the stem will separate freely from its union with the branch, the apple is sufficiently mature for storing.

The proper temperature for keeping apples is as nearly 35 degrees F., as it is possible to keep it, and in order to maintain this, it will often be necessary to provide a separate place for storing the fruit, as the average cellar under the dwelling house is wholly unfit for this purpose. If the cellar consists of several compartments so that one can be shut off completely from the others and the temperature in this kept below 40 degrees, it will answer the purpose very well. If this cannot be done, a cheap storage house may be built in connection with the ice-house, by building a room underneath, having it surrounded with ice on the sides and overhead, with facilities for drainage underneath, keeping the air dry by means of chloride of calcium placed on the floor in an open water-tight vessel, such as a large milk crock or pan. In this way the temperature may be kept very near the freezing point the year round, and apples may be kept almost indefinitely.—American Agriculturist.

THE ELBERTA PEACH.

THIS is the first season that large orchards of Elberta have fruited around Rochester. Fruit growers here are wildly enthusiastic over this remarkable variety. The peach is extraordinarily large in size. The size of Elberta surprised everyone. It has not been proclaimed to be extraordinarily large, but it is far the largest peach marketed at Rochester this year. Even on the trees that received no cultivation whatever the fruit of Elberta was large and finely colored, golden-yellow skin covered with a bright crimson blush. There seems to be few, if any, cull peaches upon trees of Elberta. The fruit is uniformly large and handsome.

A remarkable pecularity of Elberta is that the fruit can be picked long before maturity, and it will ripen up nicely, without rotting. I have yet to see the first rotten peach upon an Elberta tree. It is undoubtedly the best of all the peaches for long shipment. The Elberta is rather a longish peach, not so round as Crawford. Otherwise it might be mistaken for a Crawford. I do not think in quality it quite equals the Crawford, but the quality is acceptable and good. The flesh is yellow and juicy, and it is a free-stone. The tree is a vigorous and upright grower, exceedingly hardy in bud; hardier than Mountain Rose, Stump or Oldmixon.

A peach grower near this city had several acres of Elberta in bearing. Most of the noted Pomologists of Western New York visited this orchard and were amazed at the quantity, beauty, and size of Elberta, which this orchardist was selling at double the price of ordinary peaches. This peach grower says he will set 12,000 trees of Elberta next year.

I take considerable pride in the success of the Elberta peach since I was among the first to call attention of fruit growers to this remarkable variety. Several years ago I visited with J. H Hales the orchards of Samuel Rump, in Georgia, which is the home of the Elberta peach. There I saw the original Elberta tree. It was one of thousands of seedlings, and the only seedling out of the thousands that was considered of value. All the others were cut away and burned, this alone left to stand.—Green's Fruit Grower.

THE BURBANK PLUM.

THE Burbank plum is again bearing a large crop of fruit this season as it did last.

This variety of the plum has a habit, as far as my experience goes, of setting four times as much fruit as the tree ought to ripen. Five-year-old trees on light sandy soil well fertilized, have borne crops for three seasons, and each season there were so many upon the tree that to have fine fruit thinning was necessary.

The Burbank is quite different from some other varieties of plums; they hang to the tree and do not drop—so that a tree of this variety will carry to maturity a great number of plums, but if not thinned out very heavily the fruit will not be large.

This season I have seen the difference in thinning and not thinning in a marked degree. Some trees were thinned early, and in a week the plums were a third larger on these trees than others which had not yet been thinned.—The Central States Fruit Grower, St. Joseph, Mich.

CONDITIONS OF PLANT LIFE.

IN dealing with the conditions of plant life it is well to dwell on the fact that each species and variety even requires conditions of its own for its best development, and that it is the object of scientific culture to discover and provide those conditions as nearly as possible. Thus, recent experimentation has proved incontestably that flat cultivation is incomparably the best for corn and potatoes. The old-fashioned and long continued ridge or hill culture destroyed many of the most useful fibres of the root system, for these extend out much farther from the plant than is usually supposed. It is now known also that frequent shallow cultivation will do very much to prevent the ill effects of drought in the case of all crops where it can be applied, and especially with fruits. The top soil thus kept loose acts as a mulch checking evaporation, and conserving the moisture beneath. The best results yet reached in apple culture have been attained by keeping the ground fallow, thus retaining all the fertility and moisture of the soil for the trees alone, and preventing the waste of this moisture from the open ground by frequent shallow culture. Thus the trees get the benefit of the immense quantity of moisture that would have been transpired through the leaves of the other crop, and besides the frequent stirrings of the soil have made the supply of plant food stored therein more soluble and more available for the use of the trees.

Another interesting discovery bearing on the conditions of plant growth has regard to the beet crop—a crop which is of exceeding importance since it not only yields three-fifths of the sugar supply of the world, but is becoming more and more recognized as the best of cattle foods for dairy purposes. Innumerable analyses of cross-sections of the beet root have shown that the secretion of sugar goes on to a comparatively small extent in the upper end of the root when that has been exposed to the light, and that consequently the value of the root both for sugar manufacture and for feeding purposes is very much increased when top of the root is kept covered by soil.

The processes of pollination are a source of never failing interest to young people. There are several facts of a practical bearing that will bear emphasizing in dealing with this topic. Thus, it will not do to take it for granted now-a-days that flowers that have both stamens and pistils are necessarily self-fertile, or even that any amount of cross-fertilization among plants of the same variety with perfect flowers will avail to produce a fair crop of fruit. Bartlett pears, for instance, are notoriously unproductive unless their blossoms are fertilized from some other variety. Yet Bartlett blossoms are perfect and produce an abundance of pollen, which, however, is for the most part impotent on Bartlett pistils. Several kinds of apples have the same defect.

Such facts as these are beginning to be known to all scientific growers. But why should they not be known also in every family that has a boy or girl studying Botany in our schools? It certainly would be worth while to take up many such facts in our classes if it were only to create a stronger bond between the family and the school.

Some interesting investigations have recently been made in connection with the wonderful production of pollen in

Indian corn. We know, of course, that all wind-fertilized plants are very prolific in pollen, and that this condition is necessitated by the great waste involved in the process of wind-fertilization. But it has recently been shown to be probable that in the case of corn grown as we grow it, with plants in regular order in large masses, the amount of pollen produced is at least twice as much as is necessary for full fertilization. Now, the production of pollen is an exceedingly exhaustive process, and it would seem reasonable to suppose that the crop of grain might be increased if this waste of plant resource could be stopped. This has actually been shown to be true in some cases at least. In a series of experiments carried on at Cornell University during the past four years, the tassels or staminate flower clusters were removed from every alternate row at the earliest stage possible, with the remarkable result that there was an increase in the total crop on an average of the four years of over twenty per cent. The increased yield of the whole crop was entirely due to the increase on the detasselled rows, and this is readily explained by the fact that the plants here being relieved from pollen producing, all their energy was applied in the direction of seed-development.

Darwin discovered long ago that atrophy of seeds was frequently accompanied by a gain in size and quality of fruit. It is now an object of ambition among scientific fruit-growers to obtain by selection and cultivation varieties with small seeds or none. Recent triumphs in this direction are the California Navel Seedless orange, and the Lincoln Coreless pear. Great efforts are being made to reduce the size of the seeds in raspberries. In tomatoes the pulpy placentæ and outside walls have been developed and the seeding quality discouraged until now two varieties have been produced, the Ponderosa and the Crimson Cushion, in which the quantity of seed is said to be less than one-third of that produced by the varieties in cultivation but a few years ago. We have long had in the market the seedless fruits of the Grecian grape currant and the Sultana raisin, and we know that as the result of being continually reproduced from cuttings alone the banana has lost the power of producing seeds. But our chief hope of improvement in this as in other directions is from natural variations shown either in seedlings or branches. Florists are always on the lookout for "sport" branches on their old standard sorts of roses for instance, and as a result we find distinct varieties being introduced nearly every year. Our young botanists ought to be instructed in such a way on these points that they could be on the lookout for useful variations and know them when they see them. Much good would result in the future if all young people could be so educated, and much good has been missed in the past because we and our fathers were not so educated. As a simple instance I may refer to the story of a neighbor of mine who says that when he was a boy, forty years ago, there grew on his father's farm a seedling apple of good quality that was almost coreless. Like the great majority of people he did not know the value of such a variation, but if he had that tree now it might be worth a good sum to him.

By continuous selection of favorable variations, by propagation from these, followed again and again and again by selection and propagation under favorable conditions of culture, mankind has

not only improved the quality of all our plant products, but he has also extended the season of some of our most delicious fruits and vegetables. We have moreover obtained varieties that may be successfully cultivated over much wider ranges of soil and temperature than the original types. No more interesting or useful object of endeavor could be set up before the minds of young botanists than some useful achievement of this nature. For instance, what a boon it would be for Manitoba if some one would develop a variety of Fyfe wheat, or something as good as the Fyfe, that would invariably ripen before the early frosts would strike it. The Ladoga Russian wheat matures early enough to escape the frost, but the bread made from it is of a yellowish color which much lessens the value of this grain in the market. It would be a benefit, too, to develop a tomato or a melon or a Lima bean that would mature anywhere in lower Ontario. He will be a public benefactor, also, who can by the production of earlier or later varieties of strawberries, extend the season in which we may enjoy this luscious fruit.

The development of some of our wild plants or fruits offers a wide field for usefulness. It is idle to suppose that mankind has exhausted the list of plants that might be made available for some one or another of our varied needs or pleasures. The work is going on in various quarters of the world, and young Canadians ought to begin to take a hand in it. American horticulturists are now developing a viburnum (V. opulus), which is quite common in this country, too, and which is valuable as an ornamental bush, not only on account of its rich deep green foliage, but also because of its exceedingly beautiful red fruit clusters. To people of a practical turn of mind this viburnum will, moreover, be commended by the facts that the fruit yields a table jelly of surpassing excellence, and the bark contains a medicinal principle of great value. Americans have also recently introduced for garden cultivation a dwarf Juneberry which, they declare, produces bountifully a simple fruit which suits many people. There is yet a fine opportunity for some aspiring young Canadian botanist to develop a valuable garden fruit out of our common May apple. Most of us know what a rich tropical flavor the fruit of this plant has. But the fruit is small, and the fruit-bearing plants comparatively rare and unproductive. If some one would make a study of the conditions under which this plant thrives best, by judicious selection and cultivation he would probably be able in time to increase the productiveness of the plant, the size of the fruit, and the proportionate quantity of pulp it contains, without sacrificing its present fine flavor, and here would be an achievement worthy of fame. — From an address by A. STEVENSON, before the Woodstock Horticultural Society.

THE SAN JOSE SCALE.

THIS San Jose scale is the worst insect pest that has ever visited Ohio. It is worse than all other orchard pests combined, because of its deadly effects, not only upon orchard trees, but upon many ornamental trees and shrubs, as well as on rose, raspberry, blackberry and currant bushes. It is very minute and difficult to detect until it has increased and begun to cover the tree or bush with a gray, scurfy covering, while a single female insect may get under a bud and, while entirely concealed there, produce enough young to ultimately cause the death of the tree.

This insect protects itself with a covering shaped somewhat like an inverted plate, under which it lives and gives birth to its young. This scale covering protects the insect not only from the weather, but also from most applications that can be made for the purpose of killing it. It seems that, in the cases of many such applications, the mixture has to be made so strong that it will penetrate the bark and kill the tree or plant, before it will penetrate this scale and kill the insect underneath. Kerosene will penetrate this scale and kill the insect, but can only be used with safety during cold weather when the pores of the bark are closed, and on the more hardy varieties, like the apple, and some of the more hardy ornamental trees and shrubs. This scale insect multiplies with such rapidity that in a few years, or about the time a young tree should come into bearing, it will have become so affected as to be nearly or quite dead.

All badly infested trees should be cut out and burned, and all others growing near them should be cut back, and treated in fall and spring with a mixture of two pounds of whale oil soap, dissolved in one gallon of water. All orchards that have been set within the last eight or nine years should be carefully inspected and if any trees are noted with a small gray scale thickly scattered upon them, at once send a sample to the Station for indentification. —Bulletin Ohio Experiment Station.

VEGETABLES STORED FOR WINTER.

BEETS, turnips and other roots for early winter use, may be stored in barrels in the cellar, covering them with sand or soil to prevent wilting. Not a bad plan is that practiced by a friend of the writer's. He obtains enough thin turf from a meadow to make about four layers in the barrel. Then filling in some roots in the barrel he puts a layer of sod on top, then more roots and more sod until the barrel is full, finishing off with sod at the top. For spring use it is better to put these roots in a dry spot out of doors. Celery may be stored in narrow trenches in the garden or else be packed in a cool cellar, having the roots rest on damp earth. Cabbage may be pitted almost like roots. The heads should be inverted to keep moisture and dirt from the inside parts. For family use, to store some in a barrel that is covered with earth and opening from one end, answers very well. In all the ways of keeping vegetables the main object is to preserve something like uniformity of temperature, with a fair degree of moisture to prevent wilting.—Vicks Magazine.

A NEW STRAWBERRY.

FIG. 1255.—NICK HOMER.

Mr. M. Crawford, of Cuyahoga Falls, Ohio, sends us an engraving of this strawberry, which he says was originated by Mr. John F. Beaver, of Ohio. Mr. Crawford describes it as follows :

The plant is very large and stocky, sending out plenty of very strong runners. It is probably not surpassed in healthy, vigorous growth and great productiveness by any variety. It has a perfect blossom. The fruit is of the very largest size, a giant among strawberries. It is never misshapen. Its only departure from the regular, roundish conical form is when, under high culture, it is somewhat triangular. It is dark glossy red, firm and of excellent flavor.

WHITEWASHING PEACH TREES.

A RECENT bulletin of the Missouri Experiment Station discusses the winter protection of the peach. One of the most promising methods of preventing the buds from swelling, rendering them liable to destruction from cold weather, is whitewashing. It was found that the whitened buds remained practically dormant until April, while unprotected buds swelled perceptibly during warm days late in February and early in March. Eighty per cent. of the unwhitened buds escaped winter killing. Whitened buds blossomed three to six days later than unwhitened ones. Thermometers covered with material the color of the peach twigs registered, during bright, sunny weather, from ten to over twenty degrees higher than thermometers covered with white material of similar texture, thus indicating that whitened peach twigs might be expected to absorb much less heat than those that were not whitened.

The whitewash used was four parts of water, one part of skimmed milk and enough freshly slacked lime to make as thick a wash as could conveniently be pumped through a Bordeaux spray nozzle without clogging. This wash was sprayed on the trees by means of a bucket spray pump. The first application was made the last of December, and three subsequent sprayings were necessary to keep the trees thoroughly coated until spring. The cost for material and labor is about 10 cents per tree, when done on a small scale.

New Fruits.

LOGANBERRY.

N. B.—The Editor takes no responsibility for statements made by Correspondents under this head.

I WISH to state through the columns of your journal my success with the new fruit called the Loganberry. Four plants set fourteen months ago have yielded, up to date, seventy-three three-quarter boxes of large, handsome berries. They are a little tart for table use, but for jelly they are as good as the best, and for pies they are better. No hard seeds, and the flavor is good. Plants are twenty feet apart, and trained on a wire trellis. Some canes send a branch each way to the next stake, making forty feet from tip to tip. Have sold berries to the amount of four dollars and fifty cents, and plants from slips, in March, to the amount of two dollars, making an income of six dollars and fifty cents from four plants inside of fourteen months.

Others may have done better, and if so, they should let it be known. My neighbors join in pronouncing the Loganberry ahead of anything in the berry line, and will verify all my statements. Could hardly recommend them for field culture or for shipping, as they are very soft; but for home use I think every family that can should have a few plants, and give them good care.

F. W. BURR.

California.

FIG. 1256.—THE LOGANBERRY. (One half Natural Size.)

[This fruit is one of great promise for the middle states. Professor Stinson, of

the Agricultural College of Arkansas, recently told me that it promises to become a market fruit of importance in his section, and similar reports come from Massachusetts and elsewhere. The fruit is like a red blackberry, being solid and of a bright red color. The plant has the habit of the dewberry, but the foliage and wood are quite peculiar. It is a vigorous grower, and roots freely from layers. In Minnesota it has not done so very well at the Experiment Station, but it is probable that state is beyond its successful limit of culture.—S. B. Green, in Farm and Fireside.

A NEW PLUM.

FIG. 1257.—OCTOBER.

WE give our readers an engraving of the "October" plum, an exceptionally late variety sent in to this office, October 20, 1897, by Mr. A. M. Smith, of St. Catharines, one of our Directors. The fruit is of medium size, roundish; skin thin, dark purple, with greyish bloom; flesh dark yellow, tender, juicy; flavor rich, sweet, and very agreeable.

WINTERING PLANTS IN THE CELLAR.

Plants are placed in the cellar to rest, not to grow. Nothing is more harmful to them when thus stored away than water, and it should never be given unless to keep the soil from becoming dust dry.

In early spring if the buds on the plants are seen to be starting a little, do not give water which would only favor their growth, but keep as dry and cool as possible until time to take them out of the cellar.—*Vicks Magazine.*

STRAWBERRY CULTURE FOR DECEMBER.

WINTER PROTECTION.

WINTER protection should, at the North, be applied about the last of November; in this latitude about December 10th or 15th. A good rule is to apply it as soon as the ground freezes hard enough for a wagon to drive over fields without breaking through the frozen crust.

The chief object in winter protection is to lessen the heaving of the soil and the consequent breaking of the roots and rootlets of the plants. The stiffer the soil the worse the heaving, and the greater the necessity of protection.

The covering should not be thick enough to entirely prevent the soil from freezing, but to greatly lessen the freezing in the severest weather. Pine straw, a little less than an inch deep *after it settles*, is the proper depth in this latitude. It would have to be deeper in proportion as you went North.

In winter protection at the North the whole ground should be covered, beds, middles and all.

The varieties of material that can be used are almost endless. Where pine straw, or pine needles, as it is often called, can be obtained it is almost the ideal covering. Of all similar material it is the least likely to be blown off. Wheat straw, oat straw, marsh grass and other similar things are used. Cornstalks can also be used, but as they do not lie close a much thicker layer will, of course, be necessary.

The great objection to oak and similar leaves is that they blow off so bad, which is also the case with oat and wheat straw unless they are cut up very fine. Yet such leaves and straw are often used and anchored in place by placing on them small stones or a little earth at short intervals.

All available stable or barn-yard manure should be used for this purpose, taking the place of other material. If coarse it can be applied quite thick directly over the plants. If very fine it will be best to use it mostly around and between the plants and to put a coarser, more open material just over the plants. The effect of too close a material over plants is to bleach and make them tender.

Whatever covering is used it must be nearly all removed from immediately over the plants about the time that growth begins in the spring. The material can be left around the plants and between the rows, where it will serve the double purpose of keeping the berries clean and of conserving moisture then so essential to a good crop.

Whether winter protection pays or is even advisable south of the Mason and Dixon line is uncertain. I have experimented for many winters. Some winters it did good; some winters it seemed to be rather harmful. It certainly would not be advisable farther South where crickets and harmful insects harbor under it and feed on the plants. Besides, the warmer the climate the more danger of smothering and bleaching the plants.

But stable or barn-yard manure is excellent in any climate if properly used. I have never known any insect pests to harbor under it.

At the South it should be applied around and between the plants. Used in this way with a liberal dressing of hard-wood ashes (fifty bushels to the acre can be used), or 300 pounds of kainit in place of the ashes, and 300

pounds of acid phosphate, a heavy crop of fine berries will almost surely be made. The fertilizer should be applied before the manure. It is also good to use without the manure.

How to Plant.

Plow the land well and deeply, harrowing if cloddy. Sandy loam will rarely need harrowing. Run off rows three feet apart. Two and a half feet will do if land is scarce, though it makes plowing somewhat more tedious. Sow in the furrow cotton-seed meal at rate of 300 to 500 pounds an acre. Mix it with soil by running cultivator or plow down the furrows. List in this with a light furrow from each side. Work list down very low with hoes or a horse drag. Set plants fifteen inches apart, or eighteen inches if it is a stout-growing variety and the soil is very rich. Plant deep enough to cover roots well. Plants can safely be set a little deeper in winter than in spring.

Other fertilizer can be used. I recommend cotton-seed meal as being less likely to damage newly-set plants should it come in contact with their roots. But there is but little danger of this in the cool, moist fall and winter weather.

Kainit and acid phosphate can be applied at any time afterwards around or between the plants, and in quantities above recommended.

I often use a ton of cotton-seed meal to the acre, applying it broadcast and harrowing it in well before listing and planting. Still a barn-yard manure can be used to great advantage if likewise broadcast and plowed in. Where plentifully used no other kind of fertilizer need be then applied.

O. W. Blacknall.

Kittrell, N. C.

PEONIES.

FIRST, they are man-catchers. Our good brethren delight in their big, bold out-lines and rich, warm colors. I believe in remembering the men,—they are half the world, you know. Plant liberally enough of the peonies so that you can afford to share with your friends. Have a white, a pink and a deep red one if you have not room for more. Your husband's friends, the doctor and lawyer, the minister and the editor, will appreciate one of these grand posies, especially if arranged with a bit of the old-fashioned ribbon-grass that nature seems to have intended to go with the snow-ball and peony. Then give that big, awkward neighbor boy one now and then, or that rough-jacketed workman; it will do them good, and you also.

The second thing I have learned about them is that if one wishes variety without duplication, he ought to purchase his peonies all of one dealer.

Some people say to starve peonies. Our finest specimens are in the full sun, with half shade a small portion of the day, and the beds are mellow and deep; besides, we give a dressing of rotted manure each year, and have from the first. We have always found that luxuriant foliage precedes abundant flowers, hence no starving for us.—Vicks' Magazine.

THE ENGLISH SPARROW IN CANADA.

HOWEVER little attention may be given to the subject, one cannot fail to recognize the economic value of our Canadian birds. It will be obvious also, to even the most casual observer that changes have taken place among the feathered tribes in the last few years. Perhaps the farmer wonders why it is, that he hears so few early morning songsters this year, or why the bluebird never nests in the hollow gatepost any more, or maybe he wonders why the chimney swallow does not build her peculiar nest on the inside boards of the barn as he has remembered her to do ever since he was a boy.

It is a very evident and also lamentable fact, that our insectivorous birds are becoming scarcer every year. In answer to questions sent out by the Bureau of Industries in '95 *re* bluebirds, reports have come in from all parts of the Province that few have nested in any locality. In reply as to the cause of this state of affairs, authorities on the subject are unanimous in the opinion that the bluebird has been driven out by the English sparrow. This spring I saw sparrows forcibly evicting barn swallows and pewees which had built their nests under eaves. Nor are any of our small birds exempt from their attacks. Prof. A. J. Cook in his admirable work on "The Birds of Michigan," asserts that even "The kingbird (*Tyrannus tyrannus*) is one of the victims of the English sparrow."

The English or European sparrow (*passer domesticus*) was introduced into New York in 1850 and since that time they have increased so rapidly that now probably not a single village or town could be found in the whole of North America that has not its hundreds and even thousands of them. The sparrow does not raise one or two broods a year as do our native species, but breed continuously throughout the season, and either eggs or young birds may be found in the nest any time from May till September. Some American ornithologists affirm that they have known one pair to raise as many as 30 young in a season. The food of the sparrow consists almost entirely of grain, which in cities is picked from the droppings of horses. Of late years, however, they have pushed into the country where they have made themselves notorious by nipping off the early fruit buds.

To ornithologists the sparrow is a peculiar enigma. In England the Rev. F. O. Morris, one of the best authorities on birds in Europe, classes him as a useful bird, and English farmers protect him for his insectivorous habits. Nor is he pugnacious there, for the little English robin an even smaller bird will put him to flight. It was in consideration of these useful qualities that the sparrow was introduced into America. But here his habits have proved to be just the reverse of useful, and American ornithologists are unanimous in condemning him for driving out native birds. No one seems to be able to offer any explanation of this change of habits in sparrows. The only thing approximating an explanation is that given by Mr. Darwin in his "Origin of Species," where he gives several analogous cases of imported species supplanting native ones.

However, the fact remains, that our native birds are becoming scarce, and that the English sparrow is the cause of the scarcity. What are our farmers and fruit growers going to do about it? In many of the States of the Union a

bonus given for sparrows' heads is doing much to thin their ranks, but in Canada as yet no legislation has been made in the matter. I would like to suggest that this subject be made a topic for discussion at our winter meetings of Institutes and Horticultural Societies.

In experimenting somewhat this year in protecting insectivorous birds, I have kept a gun in my barn and have shot, or shot at, every sparrow that showed his head on the place, at the same time putting up nests and protecting useful birds in every way possible. As a result I have noticed more swallows in the barn and more warblers, bluebirds, orioles, etc., in the orchards than I have seen on the place for years, and more than one stranger has remarked to me on the number and variety of birds about my trees. Would it be too much to add that a heavy crop of plums, in an orchard where the curculio, in spite of our efforts, has always reigned supreme has convinced me of the profit of protecting native birds. I might say in conclusion, that I am confident that if every farmer and fruit grower would take the trouble to shoot off the sparrows about his premises, the present regime of back-aching spray pumps and nauseous insecticides would pass away.

WM. N. HUTT.

Southend, Ont.

AUTUMN LEAVES.

"PROBABLY not one person in a thousand knows just why leaves change their color in the fall," remarked an eminent botanist the other day. "When the sap ceases to flow in the autumn, the natural growth of the tree is retarded and oxidation of the tissues takes place. Under certain conditions the green of the leaf changes to red; under different aspects it takes on a yellow or brown hue. The difference in color is due to the difference in combinations of the original constituents of the green tissues and to the varying condition of climate, exposure and soil. A dry, hot climate produces more brilliant foliage than one that is damp and cool. This is the reason that American autumns are so much more gorgeous than those of England and Scotland.

"There are several things about leaves, however, that even science cannot explain. For instance, why one of two trees growing side by side, of the same age, and having the same exposure, should take on a brilliant red in the fall and the other should turn yellow, or why one branch of a tree should be highly colored and the rest of the tree have only a yellow tint, are questions that are as impossible to answer as why one member of a family should be perfectly healthy and another sickly. Maples and oaks have the brightest colors.

"People should be careful not to touch the gorgeous red and yellow autumn leaves of shrubs and climbing plants which are known to be harmless. Our two poisonous native plants display the most brilliant autumnal colors of any species in our woods and highways. The poisonous sumac resembles a group of young ash trees. The poisonous ivy resembles the harmless woodbine. Its leaves, however, have but three leaflets, while those of the woodbine have five."

PRUNING OF FLOWERING SHRUBS.

IN the winter season much of the pruning of flowering shrubs is performed, and usually the operation takes with it all the flower buds that should clothe the plant with a mass of bloom during the spring and early summer. This is because gardeners do not consider the flowering habit of the various shrubs with which they have to deal. To prune away in winter the young wood from a weigela, deutzia, mock orange, lilac or bush honeysuckle, takes with it all the bloom of the following spring. This is usually the case, however, when indiscriminate pruning is practiced.

There are very few shrubs that may be severely cut in winter. The hardy hydrangea, althæa, and some smaller shrubs, like the hypericum, form their flower buds on the young growths made in the summer of the same year they bloom, but nearly all other shrubs make their flower buds on the young growth made the season previous to their expanding.

The proper system of pruning is one that will induce an abundance of young wood, and this can only be accomplished by the trimming out of much of the two-year-old growth — that which has already flowered—cutting out the old shoots close to the ground, so that the new growth will push out from the root of the plant. If the bush makes too strong and rank a growth, a moderate amount of pruning in winter will not lessen the bloom to any extent, especially as the extreme ends of the young wood do not flower.

Summer pruning of flowering shrubs is practiced by some gardeners with success, after the plants have done blooming, but in this case it must be done with great care, as the cutting away of much wood when in full leaf tends to weaken the plant, while the object to be gained is to foster a strong and vigorous growth. It is an excellent time, however, for a moderate pruning. — Thomas Meehan, in New Eng. Florist.

RE-POTTING HOUSE PLANTS.

THE best way to determine whether or not a plant needs re-potting is to carefully remove it, holding the hand over the surface and hitting the edge of the crock a light blow by bringing it down upon a table. Examine the roots, and if they are matted about the sides and bottom of the ball, the plant evidently requires fresh potting. Then carefully reduce the ball of earth to about a third of its original bulk; single out the matted roots and trim away all that are moldy and decayed. Probably the same pot may then be large enough, but if it requires a larger one it should be about two inches broader for a middle-sized plant, three or four for a large plant. If the roots are not matted, but the pots are filled with fibers, keep the ball entire, and carefully plant it in a larger pot. At the top of a large pot, an inch, and of a small one, half an inch, should be left for reception of water, without danger of overflow. A little gravel, charcoal or pieces of broken pots should always be placed at the bottom for drainage. A plant newly potted must never be exposed to a strong sun. It should be watered and placed in the shade immediately and there remain till it is rooted, which may be known by its starting to grow.—Farm and Home.

THE WINTER HOUSE-GARDEN.

WE cannot all have a greenhouse; we are not, all of us, wealthy enough to enjoy the luxury of a conservatory, but there are few of us who cannot have house-plants, if only a few. The true lover of flowers will not be restricted to the out-of-door garden during the summer months, although there is much said about the unhealthiness of in-door gardening.

While there are medical authorities to sanction this idea, still the weight of popular opinion is on the side of the flowers; and even many physicians maintain that even in dormitories, window-gardens exert no injurious effects unless there is lack of ventilation.

It is, at the same time, true, of course, that flowers in a close room have prejudicial effects upon those organizations that possess an aversion to them for which they cannot account.

The odour of the tuberose, for instance, make many people ill, and in such instances it is not necessary to state that those flowers producing such an effect should be banished.

For our window-garden we do not need a very commodious bay-window on the sunny side of a house, and the heat that is necessary to vegetable life is quite as good, been artificial, some say; but it is only reason to suppose that the sun is important to plants chemically as well as thermally. So, when it is possible, we should choose a window with southern exposure.

Seventy-five degrees by day, and forty-five by night, indicates the proper average. We must take care to provide the room with water in open vessels, so that a proper moisture may accompany the artificial warmth; if we neglect this, the flowers will fade and the plants cease to flourish.

Another precaution should be in regard to dust. When dust is allowed to settle on plants it closes the respiration of the leaves, and stops their breathing, for the leaves are the lungs of vegetation. If dust has accumulated by accident or thoughtlessness, it should be removed by a syringe immediately.

If plants are troubled by worms in the soil, the plants should be removed until the soil has been examined, bit by bit, and if the intruders are there, a little ammonia in a gallon of water poured over the earth will kill them, and give fresh impetus to the flowers.

For pot-plants the best combination is, one part sand, one of loam, one of leaf-mould, and a small quantity of compost.

Geraniums, fuchias, and most analogous plants demand nothing more, while bulbs do better in a nearly-all sand soil. Vines need something richer.

Kitchen odours are not healthful to plants, choking them, and stopping their respiration. If, therefore, we must have our house-garden in a room adjoining the kitchen, we must take great pains to change the air frequently, but taking equal care to see that they are not chilled by the too great and sudden change of temperature.

The *Speciosa Fuchsia* will fail to bloom if kept growing all the year round. Let it rest during the summer, if you desire it to blossom during the winter. It needs to be kept dry during September, and at least half of its top to be cut off; then re-pot it in the fall, give it more water, and keep it in a shady place. An east window is best.

It requires a soil of leaf-mould and sand, and the pot—make sure it is a twelve inch one—must have the best of drainage. Great care and close attention is needed to make this plant a success.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

THE PEOPLE OF ALGOMA seem to be interested in fruit culture. They claim that their climatic conditions are so modified by the waters of the lakes, that many fruits can be grown for export, and that a fruit experiment station should be established in that part of Ontario in order to determine what fruits may be grown successfully, and thus save the settlers there many years of wasted time in testing varieties. St. Joseph's Island has been mentioned as a desirable location for such a station.

QUEENSLAND (Australia), according to Farming, is waking up to the advantages of agricultural education. The Minister of Agriculture, the Hon. A. J. Thynne, has established an agricultural college at Galton, and arranged for several experimental farms elsewhere. He is also about to establish another experimental farm in order to make experiments in fruit culture, and particularly with regard to insect pests. It is understood that this farm will be started at a very early date, and that it will be in a neighborhood convenient to Brisbane. Within the last twelve months Sir Patrick Jennings has started a private experimental station of his own at Westbrook, Darling Downs.

FARMING, our excellent contemporary journal, which stands to the farmer in much the same relation as this journal does to the fruit grower, has made a new departure, and become a weekly. It is fresh and bright, giving prominence to all the latest matters of interest to the farmer, which it also discusses in a most intelligent manner in its editorials. We commend Farming to all our readers.

Mr. J. F. Sears, B.H., has accepted an engagement with the Nova Scotia Fruit Growers' Association. Mr. Sears is a graduate of the Iowa Agricultural College, Ames, Iowa, and will take up the work as director of the Nova Scotia School of Horticulture at Wolfville. Professor Faville, who has had charge of the work for some years, and who has been very successful, resigned last summer to take up similar work at one of the leading American experiment stations.

That Great French Preserving Process which was so lauded by interested persons at the World's Fair, consists according to Prof. Saunders, chiefly in the use of sulphur. Recently also a package of the powder was examined at the Indiana Experiment Station, and the compound was found to contain sulphur, charcoal, nitrate of soda, cane sugar, and common salt; thus:—

Cane sugar,	14.20 per cent.
Salt,	1.42 "
Nitrate of soda,	1.36 "
Sulphur,	57-63 "
Charcoal, moisture and insoluble matter,	25.64 "

The essentials of the directions for the use of this material were that the compound should be burned in a closed space and the fumes arising from the burning be absorbed by water placed in suitable vessels, and that the fruit in some cases should also be exposed to the fumes. Finally the fruit was to be placed in the water which had absorbed the fumes of the burning compound and the vessel closed. The burning of the compound would result in the production of sulphur dioxide, also known as sulphurous acid, as one product, and it is this substance which exerts the preservative action in the process. The other ingredients are merely to aid in the burning of the sulphur.

This sulphur dioxide is an intensely poisonous gas and its use prohibited as a food preservative in European countries. When the gas is absorbed by water sulphurous acid, a powerful therapeutic agent, is formed. There is no doubt that its preservative action will be effective, for it is one of the best antiseptic and bleaching agents. But there are grave objections to the indiscriminate use of powerful therapeutic agents in food The parties having the material and rights for sale state that the material or process is covered by a patent. On inquiry at the U. S. patent office it was learned that the patent with the number said to belong to this process was issued for some sort of machinery and had no relation to this subject.

The British Weekly has it that Mr. Kipling has not changed his opinion of the Canadian climate in spite of the endless exclamatory periods after "Our Lady of the Snows." It would seem that he is indeed wedded to his idols, for he has contributed the following skit to "Wee Willie Winkie," the juvenile periodical edited by Lady Marjorie Gordon, the daughter of Lord Aberdeen:—

"There was once a small boy of Quebec,
Who was buried in snow to the neck.
When asked: 'Are you friz?'
He replied: 'Yes, I is,
But we don't call this cold in Quebec.'"

Programmes are out for the meeting of our Association at Waterloo, on the 15th and 16th, and may be had on application to the Secretary at Grimsby. A large and important meeting is expected.

PRICE OF APPLES never ruled higher, so far as we know, than this season. Some very high prices, according to the Fruit Growers of London England, have been made in Liverpool during the month of November. Spys for instance, went up to 24s. 3d. per barrel, Newtowns to 31s. 6d., and King Pippins to 32s. The latter were Canadian, and proves the superior nature of the Canadian fruit against the American. Such prices have not been known for years. Greenings actually went up to 22s. 6d., Spys to 26s. 9d., and various odd sorts ranged in value from 12s. to 28s per barrel. Money is being made freely at these prices.

Pears.—The same journal, speaking of pears says:

"French Duchess are worth from 3s. 6d. to 5s. 6d. per case, and crates from 6s. to 14s. Of course the latter contain a large quantity, cases running from 40 to 48, and crates as high as twelve dozen. The California fruit is remarkably fine. Glout Morceau are making the highest prices, ranging from 8s. 6d. to 10s. 6d. Easter Beurres are worth from 7s. to 8s., and Winter Nelis the same prices per half case. The quinces from the same country are very good, making from 9s. to 12s. per three to four dozen package.

"The California pear trade will develop into a big business and we are satisfied that these growers have a great future before them. The English markets can take all the choice fruit they can send across, and it is to be hoped the shippers will keep up the quality of their shipments."

We do not see why our friends in California, three thousand miles farther away than we in Ontario, should capture the English market, when we have equally good Bartlett pears, and when the Dominion is ready to give us the cold storage necessary to put our fruits there in the best condition.

THE ONTARIO AGRICULTURAL AND EXPERIMENTAL UNION holds its 19th meeting at the O. A. C. Guelph, on the 8th, 9th and 10th. An interesting popular programme will be given on the evening of the 8th and the two following days will be given to addresses and discussions, of especial interest to farmers.

CANADIAN PEARS seems to be highly appreciated in England—Messrs. Wood, Omerod & Co., of Edinburgh write: "We were present yesterday (Nov. 3rd) at sale of (Canadian) grapes, pears, etc., at Glasgow. Pears made a pleasant surprise, and were in nice order. We bought the first parcel of five cases offered, Beurre d'Anjou and made a profit on them here; they sold at 15s. per case of about 54 pears at auction. We do not hesitate to say that these will become a common export, if care be taken. The condition of nearly all the samples left little to be desired, and the quality was good.

THE GERMAN APPLE MARKET is said to be a good one for Canadian apples and we are informed that the Hon. John Dryden, Minister of Agriculture for Ontario, has just forwarded samples of our finest commercial varieties for exhibition at an exhibition now in progress at Berlin. The following quotation for our apples in Hamburg were given by a firm there under date of Nov. 2nd:

Baldwin...	up to	24.25	marks,	equal to	$5 77
Ben Davis..	"	25.25	"	"	6 01
Greening..	"	18.25	"	"	4 35
Wine sap..	"	22 25	"	"	5 30
Spy.....	"	18.75	"	"	4 83
G. Russet..	"	18.25	"	"	4 35
N. Pippin..	"	23.25	"	"	5 54
Kings.....	"	17.25	"	"	4 11
Cannons...	"	17.50	"	"	4 17

The average quality of the sales was poor. Price for good fruits are very firm and prospects are very favorable, the demand being strong.

TRITOMAS.—To-day (Nov. 23) we have received from Messrs. Webster Bros. Hamilton, nearly a dozen fine spikes of Tritoma Uvaria grandiflora, which we have opened out and placed is vases for

house adornment. Mr. Webster writes: "This is the true large flowering variety it is propagated only by division of the roots and is immensely superior to those raised from seed, as well as producing larger and better flowers, we have found it to produce about twice as many as any variety of tritoma we ever grew, the best flowers are considerably larger than those we are sending, we find they have all been picked. The flowers sent are from plants growing in the nursery rows, they will probably flower for two weeks yet before cut down by frost, the roots are not entirely hardy here but winter well if given a little protection."

Mr. John Craig, Horticulturist at the Central Experimental Farm, Ottawa, has resigned his position, with the intention, we understand of further pursuing his studies in horticulture at Cornell University. We had hoped to have secured him as lecturer to our affiliated societies during the coming winter, and all will much regret his absence, which may be only temporary.

Apples and Crows. — A flock of crows migrating to the south one day recently attacked the apple orchard of Uriah Samon, Wolfe Island, and cleared it of thirty barrels of apples, leaving nothing but the cores.

Decease of Mr. John Little.—On the 17th of November this noted strawberry specialist passed away at his home at Granton Mr. M. Crawford of Cuyahoga Falls, Iowa, an intimate friend of his, was at Granton at the time of Mr. Little's death, and writes us a full account of this sad occurrence. Reviewing his life, he writes that Mr. Little was a native of Belfast, Ireland, where he was born in 1814, where he was engaged by the Government as civil engineer, but after his marriage he came to Canada and settled on the farm of 300 acres at Granton, which he has occupied for 53 years. About 25 years ago, when visiting a friend who was picking some nice strawberries, he became enamoured with this healthful fruit and his interest has deepened ever since. He has raised many seedlings and has tested nearly all the new varieties that have come into the market during the last quarter of a century. The Woolverton and Saunders are among his best named seedlings, and two others not yet named are thought to be very desirable. His business will be continued by his daughter, Miss Ellen, who has assisted her father for years in filling orders.

PRUNING LILAC AND WEIGELA.

Both lilac and weigela bear their flowers on their young or green shoots, and if pruned in autumn the bloom will be much reduced. These plants need very little pruning, as a rule, beyond cutting away any dead wood or unnecessary branches, but if at any time it should be thought desirable to shorten or head back the branches, the proper time for doing it is immediately after the plants have finished their blooming.—Vicks' Magazine.

Question Drawer.

Windbreaks.

971. Sir,—I intend planting a hedge on the West and North side of a young orchard. What kind would you advise me to plant? Some say the borers work in the Spruce and Pine; would they also trouble the apple orchard? Would you recommend the Balsam Fir?

J. A. T. Islington.

A great many kinds of trees, both deciduous and evergreen, have been utilized to good advantage as windbreaks, but of the evergreens, there is none known in Southern Ontario so satisfactory as the Norway Spruce. It grows very rapidly, bears cutting well, thickens up closely, and is withal so graceful in form, that it surpasses every other. In 25 or 30 years the tree will attain a height of 30 or 40 feet, and its lower branches will spread out for a distance of at least ten feet, in every direction.

The Balsam Fir is not nearly so suitable, being inclined to thin out around the bottom, while the Norway Spruce always remains close and thick. We have seen the Scotch Pine used for the same purpose, but it is rather inclined to irregular habit, and is, withal, a slow grower.

When visiting the Fonthill Nurseries last summer, we were shown some fine samples of windbreaks, well grown up, and of quite a variety. One was a double row of Larch and American Arbor Vitæ; another of Larch and Austrian Pine mixed; another a single row of Arbor Vitæ, but the finest of all we saw there was a fine hedge of the European Larch, well grown up to be a most excellent windbreak, and an object of beauty as well. This tree is a rapid grower, and in time becomes valuable for timber.

Open Letters.

Pear Blight.

Dear Sir,—As frequent enquiries are made for the cause of the pear blight that played such havoc with our pear orchards last year, and as no one seems to give a satisfactory answer, permit me to offer a suggestion. It is quite clear to my mind that the severity of the attack in 1896 was indirectly due to the severe frost of May, 1895. This frost did much damage to many pear trees as well as other varieties of fruits, and set them back at least a month, in some cases six weeks. When the following winter set in these trees had not fully matured and hardened their timber; that is, the partitions of the minute cells of which a tree is composed, were tender, and not sufficiently hardened to resist the attacks of "Jack Frost." The cells having yielded or burst the sap could not follow its natural channels. The result was disease and in too many cases, death of the tree. This is my theory, but I do not claim to have absolute proof of the same, but experience has taught me that trees whose timber has been fully matured are much less subject to blight and other disease than those whose timber has not become properly hardened.

Thos. Hammond.

Aylmer, Ont.

The Magoon Strawberry.

Dear Sir,—Among our variety tests of new strawberries, the Magoon ranks the best; it is quite easy to see that it is a different type from the usual run of strawberries, as the foliage has a beautiful crinkled appearance. This berry is an Oregon seedling; it surpasses the sharpless in rank, luxuriant growth; the fruit is of gigantic size, and what is more, the flavor is equal to that of the finest wild strawberry; the color is a clear cherry red,

and the berry is very firm; one of the best characteristics is, that it will stand wet weather splendidly; there are many varieties of berries that the least bit of wet weather, or a few hours rain, will destroy. I sometimes think the Magoon would stand a week's wet weather, if not too ripe. The Magoon is the most productive new sort that we have ever tested. The Mexican strawberry we believe to be the most productive of all the well tested sorts. The record of the Magoon strawberry is very good, single plants by high culture, have yielded during the season, 9 lbs. of fruit. The Magoon is also a very safe berry, as it will stand extreme heavy frosts, and still yield a good crop; the heavy foliage helps to protect the blossoms wonderfully. As a shipping berry, this sort equals the Dollar strawberry, and this sort is the standard of excellence, as a long distance shipper. The blossom is perfect, and the foliage free from rust; these plants form enormous stool plants, and are at their height at three years of age. We wrote a short time ago, an article on the Mexican strawberry. A couple of horticultural editors in America, because they had never heard of this berry, at once condemned it. For their benefit, and the ones who read their papers, we would state that the Mexican strawberry is cultivated by at least 5000 strawberry growers in the west, and that all the leading seed and plant companies on the Pacific Coast, sell and advertise plants for sale. People who condemn anything without knowing the least thing about it, are not very reliable persons to edit agricultural papers.

S. L. WATKINS.

Grizzly Flats, Cal.

BULB CULTURE.

WE think the best time to start this subject of growing bulbs is when you get the bulbs in the fall. We will give the readers of THE HORTICULTURIST a few hints of our methods. Having selected the stock you intend to grow for the coming season, get some good loamy soil which can be materially improved by mixing in a liberal quantity of sharp sand. Next select a suitable sized pot, and after washing clean and soaking it in clean water for a few minutes, place a stone or piece of broken pot over the hole in the bottom of the pot. Fill the pot three-fourths full with the prepared soil, then place the bulbs in and fill the pot within an inch of the top, pressing the soil firmly around the bulb. The hyacinth, tulip, crocus, allium and ornithogalum must, after potting, be well watered, and then be set away in a place which is dark and quite cool. Leave them there to form roots, this will take from eight to ten weeks. It is necessary that these instructions should be fully carried out if good results are to be secured. Leave the bulbs in the dark until the soil is filled with roots and they will then be ready to make a strong and healthy growth as soon as they are brought to the light and warmth. Before taking the plants from the cellar see that the soil is full of roots. If it is not full, and the bulb is sound, leave it until roots are formed. Examination can be made by inverting the pot and slipping the ball of earth out without disturbing the bulb. The Mexican lily, narcissus, calla, and freesia, should, after being potted in the usual way, be watered thoroughly and set in a cool place. It is not so necessary that these should be placed in a dark place, but for the others four to six weeks in the dark is an absolute essential to success, because if the root system is not fully developed, the flowers will be a failure. If it is impossible to get loamy earth, any ordinary garden soil will do. If manure is added be sure it is thoroughly well rotted manure, as new manure will prove fatal to your bulbs. Add a little sand if the soil is lacking in that constituent. The last mentioned lot of bulbs must not be too freely watered until they have made some growth.—H. Townsend, of Desoronto Hort. Soc.

GOD save our Gracious Queen,
Long live our noble Queen,
God save the Queen!
Send her victorious,
Happy and glorious,
Long to reign over us,
God save our Queen!

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